NARRATIVE AND LANGUAGE USE: HOW MOTHERS REGARD SCHOOL-AGED CHILDREN

by

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ABSTRACT

Previous research documents the tendency for listeners to assign negative attributes to children with communication disorders. However, variability within rater groups has been large across studies. Factors that influence ratings remain unaccounted for. In this study, 60 mothers rated 1-minute narratives produced by matched child speakers with specific language impairment (SLI), attention deficit hyperactivity disorder (ADHD), and typical development (TD). It was predicted that mothers who have a child with a disability (MWCD) would be more sensitive to the consequences of negative biases and would be less inclined to assign pejorative ratings to child speakers with communication disorders than mothers whose children only have typical development (MWCTD). Participant groups were matched for age, educational level, family size, and race/ethnicity. After hearing each sample, participants provided ratings in response to 20 questions about each speaker's narrative and a 16-item questionnaire providing details about their personal experiences with individuals with disabilities. Narrative questions included information about the actual narrative, child speaker attributes, and parent/ family attributes. A 2 (MWCTD, MWCD) X 3 (SLI, ADHD, TD) mixed model ANOVA revealed statistically significant main effects within group (SLI, ADHD, TD). Analyses revealed that ratings for the TD speaker were significantly higher (i.e., "better") than the SLI and ADHD speaker ratings such that ADHD=SLI < TD or ADHD < SLI < TD. The pattern of ADHD < SLI < TD was found for questions related to narrative form and

behavioral attributes. No significant effects were found for the between groups variable or for the group x speaker interaction. Overall age, education level, and exposure to disabilities predicted ratings but having a child with disability did not. Raters seemed to be very sensitive to features present in the ADHD speaker's narrative that marked him as having behavioral difficulties. Another surprising outcome was the lack of differences between ratings of narrative form assigned to the two clinical speakers, given that the narrative produced by the SLI speaker contained numerous grammatical errors. It appears that listeners do not differentiate grammatical problems from other problems with form (phonology, fluency). Clinical implications are discussed.

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I. INTRODUCTION

The ability to communicate is an essential human skill. This skill is typically nearing mastery by the time a child enters kindergarten and is vital to academic and social success. Some children have marked differences or weaknesses in their ability to communicate as related to one or many of the five components of language: phonology, morphology, syntax, pragmatics, or semantics. For example, children with weaknesses in pragmatics may break societal norms related to how one speaks to others or acts in a given social situation. This weakness may be seen in children with a disability such as attention deficit hyperactivity disorder (ADHD) when they dominate the conversation or when they blurt out unrelated information. Children with weaknesses in morpho-syntax are not proficient in the grammatical rules of their language. This weakness is present in many children with specific language impairment (SLI). SLI occurs when a child has depressed language function without depressed cognition or any other known reason for the language difficulties (Stark & Tallal, 1981). There has been evidence to suggest that as a group, children with communication difficulties and differences may have unfounded, pejorative judgments leveraged against them by teachers or peers (Overby, Carrel, & Bernthal, 2007; Rice, Hadley, & Alexander, 1993). This study examined, in more detail, the nature of negative attributes assigned to children with SLI or ADHD.

The World Health Organization (WHO) defines disability as “an umbrella term, covering impairments, activity limitations, and participation restrictions” (2011).

Therefore, communication impairment or any type of learning disability can be included in this definition along with any person who is perceived as disabled despite not having an actual diagnosis.

Nosek et al. (2007) described that people appear to unconsciously harbor negative attitudes towards people with disabilities. Their website, http://implicit.harvard.edu has gathered data from more than 2.5 million people since 1998 showing this negative bias. This website has identified specific biased attitudes that people unconsciously hold related to characteristics such as race, religion, sexuality, and disability. To explore these biases, they used an implicit association test (IAT) that associates two traits (e.g., disabled vs. non-disabled) and two attributes (e.g., good vs. bad). They found that 76% of their overall sample showed a pro-abled implicit preference. This sample has included people with and without disabilities. Evidence from this large-scale study sample is consistent with other reports regarding attitudes towards children with learning *disabilities* (Bryan & Perlmutter, 1979; Perlmutter & Bryan, 1984).

Children with learning disabilities or delays are likely to be judged more pejoratively while interacting with another child than their typically developing peers (Brady & Woolfson, 2008; Bryan & Perlumtter, 1979). These types of negative judgments are not isolated to people with a disorder but are also applied to people who use a nonstandard dialect (Kinzler, Shutts, Dejesus, & Spelke, 2009; Lambert, Anisfeld, & Yeni-Komshian, 1965; Lev-Ari & Keysar 2010).

Bryan and Perlmutter (1979) provide a specific example about children with learning disabilities. In their study, graduate students (N=24) judged peer interactions between either 2 typically developing children (TD) or a learning disabled (LD) child and

a typically developing peer. The judges were blinded to the status of the children as either disabled or nondisabled. These interactions were presented as audio only, video only, or audio along with video. They found that the TD children were judged more positively than their LD peers no matter the stimuli presentation modality.

These findings were replicated and expanded upon by Perlmutter and Bryan (1984). They showed undergraduate students (*N*=46) multiple video clips of children diagnosed as learning disabled and their typically developing matched peers. Each sample type (LD or TD) had two conditions: (1) the child acting naturally (N) or (2) attempting to flatter the adult (F). This created four stimuli groups: LDN, LDF, TDN, and TDF. Overall, the undergraduates were more favorable towards the TD conditions, except when considering social hostility. In this case, the trend was: LDF>TDN>TDF>LDN. Thus, the pejorative judgments against the LD population were moderated by the presence of flattery.

Mothers represent an important population of judges because they are often among the first to notice or suspect communication problems. Additionally, mothers' expectations of their children can either help or hinder their child's progress. Unfortunately, information about maternal judgments of disability has been sparse (Chapman & Boersma, 1979; Gilbride, 1993).

Gilbride (1993) examined the attitudes of mothers towards their children with disabilities and people with disabilities in general. This investigator aimed to test his hypothesis that contact alone is insufficient to cause people to have positive attitudes towards people with disabilities. Gilbride (1993) argued that parent's internal feelings about their child were a more accurate predictor than contact alone. Specifically, these criteria were that the parents: (1) did not consider the disability as central to the child, (2)

did not consider their child inferior or incompetent, and (3) adequately coped with the disability. Collectively, these three criteria were termed *contact variables*. The measurement tools were three, six-point Likert scales: the Scale of Attitudes Toward Disabled Persons (Antonak, 1982), The Raising My Child and Expectations Scale, and Parental Attitudes towards Childrearing (Easterbrooks & Goldberg, 1984). The Raising My Child and Expectations scale was the tool that measured the contact variables. This scale was only given to the parents who had a child with a disability.

Gilbride (1993) received completed research packets from the parents of children with disabilities (DC; *N*=93), parents of children at risk who were enrolled in Head Start (HS; *N*=172), and parents with typically developing children (TD; *N*=192). All three groups had an average annual family income above $10,000 and below $35,000. Most packets were completed by the mother (over 87%). The average age of the children ranged from 4;2 to 5;9 (yrs; mos.) and the return rate ranged from 18%-36% depending on the group.

Overall, Gilbride (1993) found mixed support for his hypothesis. On the one hand, he found that all three groups, DC, HS, and TD, had similar feelings of warmth, encouragement, and strictness based on the Parental Attitudes Towards Childrearing questionnaire. He also found that based on the scale of attitudes towards people with disabilities, all rater groups had similar attitudes towards people with disabilities in general. This supported the hypothesis that contact alone does not create group differences in how parents evaluate their child. Taken together, these outcomes indicated that contact alone does not significantly impact on one's feelings towards people with disabilities. On the other hand, Gilbride (1993) did find some differences between the

DC, TD, and HS groups. For instance, he found that parents of children with disabilities were significantly more aggravated based on the Parental Attitudes Towards Childrearing questionnaire. Additionally, the TD and HS groups had significantly higher expectations for their children than the DC group. This more in-depth analysis implies that contact to a disability may generate more negative feelings surrounding a disability.

Gilbride (1993) also examined the differences within the DC group. He divided the DC group into three subgroups based on the Raising My Child Scales: high (DCH), moderate (DCM), and low (DCL). A high score indicated that contact with their child was more positive than a lower score. Gilbride observed mixed results within this subset. On one hand, the three subgroups were significantly different on three factors. First, the DCH had a significantly more favorable attitude towards people with a disability than the DCL and DCM groups. Next, the DCH group had higher expectations overall and with future occupational status than the DCL and DCM groups. Moreover, the DCH had a higher rating of encouragement than the DCL and DCM groups. These differences were found despite all three groups seeing a similar number of physicians in the past 6 months. These three differences indicate that despite similar types of contact, those with more positive contact variables (DCH), had more positive feelings about their child. On the other hand, Gilbride found that the DCH, DCM, and DCL were equal on their feelings of warmth, aggravation, and strictness. This indicates that those with an equal rate and type of contact had similar feelings towards people with disabilities even though there were differences with the contact variables. Overall, Gilbride found that the TD and HS groups had higher expectations for their children, but the degree of these expectations was influenced by the contact variables.

These findings should be interpreted with caution. Gilbride only considered the contact variables for the DC group; that is their specific feelings about their child. A modified questionnaire for the TD and HS groups would have been beneficial. This would have allowed examination across groups rather than looking at DC group differences only. It was helpful to see similar attitudes about disabilities generally, but there was a gap relating to parental feeling towards their children in the TD and HS groups. Despite this weakness, the results still indicate that there are some negative opinions held by mothers, which may lead to possibly problematic negative expectations (Chapman & Boersma, 1979). These negative expectations could reduce long-term progress for a child because parents may be reluctant to accept that the weaknesses can be remediated.

Communication impairment represents an important type of disability when considering the consequences of negative attributions. Communication impairments can be defined as a noticeable difference in how one speaks, a difference that is based on the negative attention it attracts from communication partners (Burroughs & Tomblin, 1990). Therefore, individuals with communication impairments are at risk to be judged pejoratively in noncommunication areas as compared to their matched typically developing peers (Bebout & Arthur, 1992; Bennett & Runyan, 1982; Marshall, Ralph, & Palmer, 2002). These judgments include characteristics about the person such as intelligence, personality, and moral character.

Bennett and Runyan (1982) considered communication impairments as a general category. Two hundred and eighty-two educators returned a survey about their feelings regarding how communication impairment affects academic performance. Overall, they

found that 66% of the respondents felt that communication impairment adversely affects academic performance.

However, there are numerous issues with this study. First, they divided the broad category of communication impairment into six groups (articulation, language, articulation and language, stuttering, voice, and unknown); however, they did not operationally define these terms. Therefore, it is unknown what types of errors are included in articulation problems and language problems. The feelings of the teachers could change depending on the errors presented such as a grammatical error or eliminating a final consonant. An ungrammatical sentence may cause the listener to make different assumptions than using immature sounding language. Similarly, they did not provide their questionnaire in the report; they only gave a broad summary of the percentage of educators who felt that the communication impairment would affect ones academic performance. They did not indicate if these findings were statistically significant nor did they provide means and standard deviations for the data. Despite these weaknesses, this study did indicate that a majority of educators make assumptions about a child's academic and social success solely dependent upon communication ability. Examples of specific communication impairments that may have pejorative judgments leveraged against them included people with voice disorders (Blood, Mahn, & Hyme, 1979) and people who stutter.

For many years, attitudes towards people who stutter (PWS) have been considered. It is one of the most developed lines of research about communication disorders and listener perceptions. Many studies have found that there are negative attributes assigned to PWS such as being characterized as shy and anxious (Dorsey & Guenther, 2000; Lass,

Ruscello, Pannbacker, Schmitt, & Everly-Myers, 1989; Lass et al., 1992; Lass et al., 1994). The series of studies from Lass et al. (1989, 1993, 1994) sent questionnaires out to respondents and asked them to list traits they associated with PWS. The researchers then looked at the proportion of positive and negative responses, finding more negative responses overall.

However, more recent studies replicating this methodology have not found statistically significant differences between the quantity of positive and negative comments (Hughes, Gabel, Irani, & Schlagheck, 2010; Irani & Gabel, 2008). This may indicate an overall historical shift in attitudes, findings that are corroborated by other studies from Williams and Dietrich (1996) and Wenker, Wegener, and Hart (1996). Wenker et al. (1996) is particularly important because it did not just send out a questionnaire, but it had an actor give a speech portraying a PWS and asked for audience reactions. Since there were not negative attitudes found in this study, it may indicate that simply asking about perceptions is inadequate. Having stimuli that a person can rate may be more accurate. Another mitigating factor for negative attitudes towards PWS may be raters' familiarity with PWS (Schlagheck, Gabel, & Hughes, 2010). Nonetheless, these more recent studies only considered educators and/or students. Fewer studies have focused on the attitudes held by parents.

Crowe and Cooper (1977) and Fowlie and Cooper (1978) found that parents with children who stutter perceive their children more negatively and may even hold more misconceptions about the etiology of the communication impairment. However, these studies are more than 30 years old. We do not know if these perceptions are still accurate today.

Another specific subgroup of communication impairments that has been considered is speech sound disorders (SSDs), which include articulatory differences and phonological disorders. Burroughs and Tomblin (1990) examined the extent to which various communication differences accounted for judgments made about children. Their participants (*N*=4) listened to 140 2-minute samples and answered various questions that loaded onto three factors: dynamism, maturity, and appeal. These factors were derived from a 24-item seven-point Likert scale. Of these three factors, only dynamism (excitable, loud, uncontrolled, bold, active, inhibitive, assertive, and dominant) could be significantly predicted by the speech sound differences; maturity and appeal were not highly predicted by speech sound differences in their study. This is counter to many other older and more recent studies (Mowrer, Wahl, Doolan, 1978; Overby et al. 2007; Ruscello, Stutler, & Toth, 1983). One possibility for this discrepancy is that they only had 4 listeners; therefore any judgments found throughout the 140 speech samples only reflected the sets of four judgments.

Other studies have indicated that judgments against people with SSD are more penalizing than what Burroughs and Tomblin (1990) reported (Overby et al., 2007; Ruscello et al., 1983). Overby et al. (2007) had a much larger listening group (*N*=48), consisting of schoolteachers. This is more relevant than 4 undergraduates without children because teachers, along with parents, are possibly more important to identifying differences across children. The issue is that their biases may cause a child to be referred for the wrong type of testing and/or diagnosis (e.g., indicating ADHD when there is really a language disorder or no problem at all). They also controlled their language samples for perceptual measures such as voice quality, pitch, and loudness. Their SSDs were

manufactured, and therefore highly controlled, by having the children read a sentence as disordered even when their actual speech was typical.

The questionnaire given to the teachers in the Overby et al. (2007) study was a modified version of the Teacher Rating Scale of Self-Perception Profile for Children (Harter, 1985) along with open-ended questions. The questionnaire responses were analyzed for quantitative differences linked to either typical speech or moderate intelligibility. They defined moderate intelligibility as an utterance having a percent consonant correct (PCC) rating of roughly 85%. They found that, on average, teachers in their study rated students with moderate intelligibility as less academically competent, less socially accepted, and as having more behavior issues. These differences were statistically significant when comparing the moderate intelligibility group to the normal intelligibility group. Overby et al. (2007) also included three qualitative questions that supported the quantitative data, with the most emphasis being placed on social penalties and behavioral issues rather than academic difficulties. Again, this misattribution could encourage referrals for behavior problems when, in actuality, they have a learning and/or language difficulty.

Attitudes towards children with language difficulties have been considered to a lesser extent. Rice et al. (1993) first illustrated that these biases reliably extend to judgments about the family as well as the child. This study had four listening groups: kindergarten teachers (*N*=26), matches to the teachers (education level and age; *N*=25), undergraduates (*N*=175), and speech language pathologists (SLPs; *N*=56). Rice et al. (1993) played a 1 $^{1}/_{2}$-minute audio sample of the child describing a toy for each listening group, then gave a nine-item questionnaire. The following questions were asked: how old

the child sounded, how well the child got their message across, the intelligence of the child, how good of a leader the child is, how well liked the child is, how well educated the child's parents are, the social status of the child's family, if the child was socially mature, and if the child would succeed academically. The stimuli consisted of three types of children: speech and language impaired, speech impaired only, and typically developing. The children defined as speech impaired were identified as such based on at least one of the following: having multiple errors on the Goldman-Fristoe Test of Articulation (GFTA; Goldman & Fristo, 1986), failing to master at least three age-appropriate sounds, and/or reduced speech intelligibility. The children considered language impaired met at least two of the following criteria: one standard deviation below the mean on the Peabody Picture Vocabulary Test-Revised (PPVT-R; Dunn & Dunn, 1981), a score below the 25th percentile on the Reynell Developmental Language Scale Revised (Reynell, 1985), or a mean length of utterance (MLU) below the expected range for their age. The children who were speech and language impaired met both of these criteria. They had two triads, one male and one female. Across listening groups and across stimuli sex, they had a consistent pattern where the speech and language impaired were judged the most pejoratively while the typically developing child speaker was judged the least pejoratively.

DeThorne and Watkins (2001) extended the Rice et al. (1993) study. They modified the questionnaire, changed the stimuli, and changed the listening groups. Their listening groups included teachers (*N*=30), undergraduate students (*N*=30), SLPs (*N*=30) and 6th graders (*N*=30). All the groups listened to a 2 $^{1}/_{2}$-minute sample discussing a picture and describing a toy. Along with the same seven-point Likert scale from Rice et

al. (1993), they also added an "uncertain" option for listeners. This, they felt, provided important information because listeners could clearly choose when they did not want to make a judgment rather than choosing the middle, neutral, option. The stimuli used included a child with speech and language difficulties, their typically developing age match, and their typically developing language match based on mean length of utterance (MLU). Speech and language difficulties were operationally defined as a score more than one standard deviation below the mean on the PPVT-R (Dunn & Dunn, 1981) and a reduced MLU. The MLU match had a score on the PPVT-R that was within typical limits for their age. The child with SLI was 5;4, the age match was 5;1, and the MLU match was 3;8. The age match was within 3 months of the child with the language impairment and had a score within typical limits on the PPVT-R.

Overall, they found that all the listening groups judged the sample taken from the child with speech and language problems the most pejoratively and the typically developing age matched child speaker the least pejoratively. Contrary to expectations, the "uncertain" option was rarely chosen, even when the questions were pertaining to intrinsic child characteristics (e.g., leadership and IQ) and parent characteristics (e.g., mother's education level and a family's annual income). Overall, the SLPs used the "uncertain" option the most, followed by the 6th graders. However, the SLPs only used this option 106 times out of 810 opportunities. This indicates that many people were willing to make these judgments even when there is an option to avoid them.

One reason for negative attributions to child speakers may be related to their ability to tell a narrative. Children with ADHD and children with SLI tend to have weaker narrative skills than their typically developing, matched peers (Fey, Catts, Proctor-

Williams, Tomblin, Zhang, 2004; Miranda, McCabe, & Bliss, 1998; Newman & McGregor, 2006). Generally, children with SLI have weakness with tense marking (Redmond, Thompson & Goldstein, 2011; Rice & Wexler, 1996) while children with ADHD have more mazes and disorganized language than their typically developing aged matched peers (Tannock, Purvis, & Schachar 1993).

Newman and McGregor (2006) explored the narrative weaknesses in children with SLI. The seven basic story grammar elements, identified by Stein and Glenn (1975), include a setting, an initiating event, an internal response, a plan, an attempt at an action, consequences of this action, and the protagonists' reactions. Newman and McGregor (2006) found that laypeople accurately grouped children as either typically developing or language impaired based on a 4-minute narrative. These researchers had teachers (N=21) and their age and education/ professional matches (N=27) listen to a story generated by children with and without SLI about the wordless picture book "Frog Where are You?" All the listeners were mothers to maximize the internal validity of their study.

This study included 10 language samples of children with SLI and 10 typically developing peers (TD). The children were included in the SLI group if they were on a current SLPs caseload without any speech sound disorders. Additionally, they were more than 1.3 standard deviations below the mean on the Non-Word Repetition Task (NWRT; Dollaghan & Campbell, 1998), and at least one standard deviation or more below the mean on two subtests from the following language tests: Peabody Picture Vocabulary Test —III (PPVT–III; Dunn & Dunn, 1997), the Expressive Vocabulary Test (EVT; Williams, 1997), Woodcock Language Proficiency Battery—Revised (WLPB– R; Woodcock, 1991), the Test of Language Development-Primary, Second Edition (TOLD–P:2;

Newcomer & Hammill, 1988), or the Test of Language Development-Primary, Third Edition (TOLD–P:3; Newcomer & Hammill, 1997). Only one of the test batteries was administered, and it depended upon which school the child was attending. The two listening groups were matched based on IQ, age (mean = 6;2 years), and maternal education and the groups were balanced for sex and ethnicity.

The questionnaire addressed the story grammar elements and compared the two listening group judgments to the quantitative measures obtained by a SALT analysis. They found that both groups accurately identified the children as having SLI or as being TD based on a lower quality rating on their Likert scale. Participants were mothers, all of who were accurate judges of narrative skills.

Though these judgments about narrative quality in the Newman and McGregor (2006) study were accurate, snap judgments about a person based solely on their narrative proficiency can have detrimental long-term consequences when the judgment extends to characteristics that cannot accurately be derived from an audio sample or description. The pejorative judgments about child and family characteristics found in the DeThorne and Watkins (2001) and the Rice et al. (1993) studies were inaccurate when compared to the actual demographic information associated with the child speakers and their families. Therefore, judgments of these sorts may translate into unfair consequences for children with SLI. Research suggests that friendship strength is another documented weakness in children with SLI as they either have fewer friendships or are more frequently bullied (Durkin & Conti-Ramsden, 2007; Gertner & Rice, 1994; Redmond, 2011). An individual diagnosed with ADHD is less attentive than their peers and/or is more hyperactive and impulsive than their peers, based on the DSM-IV (American Psychiatric Association,

2000). This weakness with friendship making ability is shared by children with ADHD, who have higher rates of non-reciprocal friendships (Holmberg & Hjern, 2008; Nijmeijer et al., 2008).

One-sided friendships indicate peer rejection, which can lead to peer victimization or bullying (Dill, Vernberg, Fonagy, Twemlow, & Gamm, 2004). Being bullied, in turn, has been documented to lead to higher rates of depression and lower self-esteem (Olweus, 1994, cited in Smokowiski & Kopasz, 2005). This implied a need to reduce other unnecessary and inaccurate judgments against children with communication impairments. Researchers such as Ebert and Prelock (1994) have found that teaching teachers about communication disabilities and differences can reduce the severity of their negative and/or incorrect snap judgments.

Ebert and Prelock (1994) recruited 16 teachers to participate in a program known as language in the classroom (LIC). Of these 16 teachers, 8 participated in the LIC program and 8 did not and served as a control group. Teachers ranked 56 children as high, middle, or low achievers. Half of the children had a known communication impairment and 28 were intellectually matched based on the previous year's performance on standardized tests. Ebert and Prelock (1994) found that teachers with the LIC training were more accurate in their rankings. That is, they successfully grouped the communication impaired child and their non-communication impaired match together in the correct high, middle, or low category more than the teachers without the LIC training. This indicates that biases can be successfully reduced following brief training.

The current study attempted to replicate and extend findings from Newman and McGregor (2006), Rice et al. (1993), and DeThorne and Watkins (2001) studies. It

focused on the impact that personal relationships with disabilities might have on the negative attributes listeners assign to child speakers with communication disorders. Participants were mothers with children who have disabilities (MWCD) and mothers with only typically developing children (MWCTD). Participants listened to brief narratives produced by 3 child speakers (SLI, ADHD, TD). After hearing the samples, the participants answered questions about each audio sample and completed a demographic questionnaire. Responses were analyzed in order to address the following research questions:

1. Are there differences between MWCD and MWCTD rater groups in their evaluations of child speakers with and without communication disorders?

H_0: MWCD = MWCTD

H_1: MWCD > MWCTD

The predicted outcome was based on the idea that MWCD had personal experience with the stigmatizing associated with communication disorder and would therefore be less inclined to assigned negative attributes to the child speakers with a communication disorder (SLI, ADHD).

2. Are there differences between the ratings participants assigned to the child speaker with SLI and ADHD related to the story?

H_0: SLI = ADHD

H_1: SLI < ADHD

The predicted outcome was based on the premise that the presence of grammatical errors would be relatively more penalizing than the presence of utterance formulation problems because language difficulties are the primary issue for a child with SLI.

3. Are there differences between the ratings participants assigned to the SLI and to the child speaker with ADHD related to behavioral differences?

H_0: SLI = ADHD

H_1: ADHD < SLI

The predicted outcome was based on the fact that behavioral differences are one of the core problems that people with ADHD face and that this can manifest as disorganized language.

4. Are there differences between the MWCD and MWCTD rater groups in the extent to which they indicate their discomfort with assigning negative attributes by nominating more personal and family attributes items as “less confident”?

H_0: MWCD = MWCTD

H_1: MWCTD < MWCD

The basis for the predicted outcome was similar to the one associated with the first research question: personal experience with disabilities should make raters more sensitive to the consequences of negative attributions, and thus more likely to recognize the insufficiency of the speech samples to make judgments about speaker’s traits or family background.

II. METHOD

This study was a pseudo experimental design. The independent variable was mothers' status as having children with a disability (MWCD) or having only typically developing children (MWCTD). Dependent variables consisted of the ratings participants assigned to each child speaker. The independent variable was categorical whereas the dependent variable was continuous, based on a visual analog scale. The dependent variable was measured in three different conditions based on the child speaker that the raters listened to (SLI, ADHD, TD).

After listening to brief recordings consisting of a retelling of family's trip to McDonalds from the Test of Narrative Language (TNL; Gillam & Pearson, 2004), the participants rated the recordings based on the quality of the narrative and initial reactions about the child and the child's parents.

Participants

All subjects (N=60) were mothers with varying levels of education, age, and exposure to children with disabilities and disabilities in general. There were two rater groups, one that had mothers with children who had disabilities (MWCD), and one that had mothers with children who were typically developing (MWCTD). Every mother had at least one school-aged child; otherwise, there were not any exclusionary criteria. For a summary of the demographic characteristics of the raters, see Table 1. Multiple t-tests

revealed no significant differences between groups based on age, mother's education level, the number of children the mother had, or race/ethnicity. In both groups, mothers who chose "multiple" categories for employment combined homemaker with another occupation. The "other" option in both groups was most commonly finance and insurance (Table 2). A chi-squared analysis revealed that there was not a difference between groups based on the percentage of mothers who identified them selves as having a disability. A wider variety of disabilities were selected in the MWCD because there were more mothers who chose 'yes'. In both groups, 2 participants selected "emotional" as their disability (e.g., depression, anxiety, etc.). In the MWCD, 2 more raters selected "emotional" along with another disorder (autism or behavioral) and 2 more in this group selected "behavioral" alone. Interestingly, 1 rater in the MWCTD group selected "communication/language" disorder, while none of the raters in the MWCD group selected this option but one did select "learning" disability.

Eight raters in the MWCD reported that they themselves had a disability. Of those, 2 selected emotional, 2 selected behavioral, and 1 selected each of the following: learning, sensory, behavioral and emotional, and emotional and autism. Four raters in the MWCTD reported that they themselves had a disability. Of those, 2 selected emotional, 1 selected communication/language, and 1 did not answer the question (Table 3).

Target enrollment was 60 participants to ensure that parametric statistical analyses procedures could be used. This goal was achieved. The intention was for there to be 30 participants in each group. The MWCTD had 29 participants and the MWCD had 31. Because in many cases status was unknown before testing, groups ended up being slightly imbalanced. Listeners were recruited from the University of Utah Speech,

Language, and Hearing Clinic, the University of Utah, and from other organizations within the community in and around Salt Lake City, Utah (e.g., churches). The participants were recruited through direct, personal contact, responses to flyers, and through church organization leaders. Flyers were posted at the University of Utah and at the University of Utah Speech, Language, and Hearing Clinic and were distributed to local churches with appropriate approval. Mothers were also contacted who participated in other research studies at the University of Utah. All participants lived in Utah and were from the following cities: Salt Lake City, West Jordan, Draper, Cottonwood Heights, and Ogden. Sixty-one people were approached, and all agreed to participate. One potential participant's ratings were not included due to an incomplete demographic questionnaire.

Complete data were available for 50/60 participants. Of those, narrative information was complete for 55/60 participants and demographic information was complete for 54/60 participants. Individual items from 10 questionnaires were missing. Five instances of missing narrative questions occurred (5/3,420 = 0.15%) and 10 demographic questions (10/1140 = 0.9%) were unanswered. Cases containing missing data were only excluded from those analyses that were based on the missing items (i.e., excluded "pair-wise" not "list-wise).

The location of data collection varied for each participant. Most were at a church gathering in a quiet, separate room or in the participant's home. Otherwise, the data were collected at the University of Utah Speech, Language, and Hearing Clinic or in the University of Utah Child Language (UUCL) lab. The location of data collection was intentionally flexible to accommodate concerns associated with traveling to the University to participate. By eliminating this barrier, participants were willing. An

additional incentive was the optional entry into a drawing for a $100 Visa gift card. Most participants decided to be included in the drawing (59/61 raters). Their contact information was collected after they filled out the questionnaires and was kept in a separate locked box that was either with the data collector or in a locked cabinet in the UUCL lab.

Approval from the University of Utah IRB was secured before recruitment and testing. The anonymity of each participant was maintained in two ways. First, none of the testing forms included any personal information (e.g., names, addresses, phone numbers, etc.) and only subject numbers were used. Participants interested in participating in the drawing provided their contact information after completing the study. In total, 59/61 raters chose to be entered into the drawing. This information was kept in a locked box that was either with Amy Ludlow or in the UUCL lab. After the drawing was complete and the winner had her prize, all entry forms were destroyed.

Speaker Samples

The speaker samples were generated from 3 children involved in a prior study (see Redmond et al., 2011). The children range in age from 7; 1 (age; months) to 7; 9, all were male, Caucasian, and monolingual speakers of Standard American English. Speakers were also matched on maternal educational level and nonverbal intelligence (nearly within one standard error of measurement) based on the Naglieri Nonverbal Ability Test (2003). One child was currently in the 1st grade (SLI), 1 child had just finished the 1st grade (ADHD), and 1 child was in the 2nd grade (TD).

Every child recounted the "McDonald's Story" from the Test of Narrative Language (Gillam & Pearson, 2004). This is a standardized procedure in which children retell a brief story after an examiner has read it to them. The orthographic and phonemic transcripts for each audio sample are provided in Appendix A.

One child was identified as having specific language impairment (SLI) by an independent certified speech language pathologist, 1 child was identified as having attention deficit hyperactivity disorder (ADHD) by a clinical psychologist, and 1 was typically developing (TD) and was not receiving any special services.

Each speaker sample was highly representative of its respective categorization (SLI, ADHD, TD). The speaker with SLI had considerably more grammatical errors than either of the other speakers with a normal behavioral profile and nonverbal IQ (e.g., *"they went to home"*). Therefore, this sample was highly consistent with the definition of SLI (Stark & Tallal, 1981). The speaker with ADHD, on the other hand, had greater grammatical accuracy, yet had a behavioral profile consistent with the ADHD diagnosis. Also, the speaker with ADHD's story was highly disorganized as it began with the ending and included tangential information (e.g., *"um I think a drink, they really needed a drink"*). These stories are distinct for the targeted clinical population. The speaker who was TD, on the other had, had a narrative with some minor grammatical errors but was scored as normal on the TNL (e.g., *"they hoppeded in the car"*).

The speech samples were highly intelligible. The speaker who was TD had a percent consonant correct (PCC) rating of 100% whereas the speaker with SLI and the speaker with ADHD had PCC of 93% and 92.5%, respectively. To consider the impact of this difference, a question about articulation was included in the questionnaire to look for

additional penalties related to speech errors. According to Shriberg, Gruber, and Kwiatkowski (1994), a PPC above 95% classified a child as having typical intelligibility and PPC from 80%-90% classifies a child as having a moderate intelligibility problem. The child speakers with SLI and ADHD did not fall into either category; therefore, it was determined that any penalties would be negligible compared to the penalties they were receiving for other errors of language. For a summary of each speaker's specific demographic information, see Table 4.

Each speaker sample lasted for approximately 1 minute. This length was slightly shorter than previous studies looking at language biases (DeThorne & Watkins, 2001; Rice et al. 1993). Any material not related to the story retell was clipped from the audio recording. Sound level adjustments to the audio files were made through the audio coding program Garage Band. These speaker samples were played for the participants in counterbalanced orders to control for ordering effects. The speaker samples were played on SanDisk Sansa Clip MP3 Player SDMX18R-004GI-A57 or an iPod Nano 3rd generation with Skullcandy Over the Ear Headphones SGAGCZ-030.

Questionnaires

Participants provided two sets of ratings. The first set related directly to the short narrative the speaker was telling (Appendix B) and the second set was related to demographic information about the rater (Appendix C). Every participant was given directions to listen to the samples carefully and then to fill out all 20 questions about each sample. If the raters asked about the speaker's age, then they were informed that all the children were 7. This occurred in approximately 20/61 trials.

The speaking samples were presented in one of three counter-balanced orders to control for potential ordering effects, such that each child speaker was presented in every position. The possible playback orders presented were written on the questionnaires (A, B, C). This allowed the investigator to deduce after data collection when each speaker (SLI, ADHD, TD) was being rated by the listener. Raters first completed the questions related to each narrative and then they completed the demographic information. This controlled for any possible priming effects because the demographic survey includes questions about contact with people with disabilities.

The scoring for the demographic questionnaire and the narrative response questionnaire were done separately and in a fixed order. All the narrative response questionnaires were scored before any of the demographic questionnaires. This ensured that the person scoring the response questionnaires was blinded to the rater's group status and to their responses to the demographic items. The packets were separated after data collection and numbered to reunite the response forms later.

Narrative Questionnaire

The questions related to the narrative were adapted from numerous sources (Appendix B). The first section, about the narrative itself, was adapted from items used by Newman and McGregor (2006). These investigators found that teachers and laypeople (all mothers) accurately distinguished between a poorly constructed and a well-crafted story based on the use of story grammar elements (Stein & Glenn, 1975). Seven key questions were adapted. It is important to note that these particular questions can be directly inferred from material contained in the speaker samples. Therefore, these

questions served as a control for the possibility that mothers of children with a disability might be overly generous in their ratings or generally reluctant to assign low scores to child speakers with disabilities.

Questions #8 to #16 related to traits/characteristics about the child speaker that cannot be directly inferred from the material contained in the samples. These questions were adapted from Rice et al. (1993), Bebout and Arthur (1992), and Overby et al. (2007). These questions were selected based on their frequency in previous investigations and the practical impact punitive judgment in these areas would have. For example, adult judgments about how smart or how much of a classroom leader a child is based on the quality of their speech could limit opportunities and alter expectations. A question about trustworthiness was added based on the work from Snow and Powell (2004, 2005, 2008).

Questions #17 to #19 were about the speaker's families. These questions were adapted from Rice et al. (1993) and DeThorne and Watkins (2001) and assessed inferences participants could make. A question related to how often his/her parents read to each child was also added. This question was considered important because of current emphases placed on parents to read to their child from teachers. However, for a child with SLI, their parents may read to them every day, but there will still be language weaknesses if an intervention plan is not implemented. This means that a child may have parents who are vested in their growth and are dedicated, yet because the child has SLI, people make unwarranted assumptions that the parents do not pay enough attention to their children.

A qualitative two-part question was added about each participant's confidence in the answers they provided. This question was added based on a suggestion from DeThorne née Segebart (1996). In her thesis, Segebart, extended the Rice et al. (1993)

questionnaire by adding an “uncertain” option. She later published her findings (DeThorne & Watkins, 2001). However, an unintended consequence was that any questions marked as “uncertain” were no longer available for analysis. Therefore, she suggested that future studies should instead include a follow-up question about participant’s confidence in their answers. This would allow analyses of the entire data set while also measuring the extent to which people were uncomfortable passing judgment on particular items on the questionnaire. After pilot data indicated that people tended to list most of the questions when given the opportunity, it was determined to rephrase the questions to ask respondents to list the top three answers they were most confident in and the three answers they were least confident in.

A visual analog scale (VAS) was chosen over Likert scales for a variety of reasons. Hasson and Arnetz (2009) found that scoring on a VAS reduced the tendency of extreme value avoidance. On a Likert scale, people have a higher likelihood of hesitating to choose the most negative or the most positive options on the scale. This end aversion potentially distorts true judgements. Hasson and Arnetz (2009) also found that once trained on a VAS, the answers were given faster and the results were more sensitive, especially for psychological scales. Therefore, the VAS represents an additional extension to previous studies (DeThorne, 2001; Newman & McGregor, 2006; Rice et al. 1993).

Demographic Questionnaire

The first eight questions of the demographic questionnaire were adapted from the U.S. Census Bureau (2000). Questions 9 through 16 were adapted from a questionnaire designed by Sanborn (2011). Questions were added for participants to list their exposure

to disabilities through relatives and other relationships (e.g., friends and coworkers). See Appendix C for the questionnaire related to demographic information.

Questionnaire Administration Procedure

The questionnaire required approximately 20 minutes and was completed in one testing session. The protocol consisted of a brief training/calibration activity followed by presentation and rating of the three speaker samples. The session concluded with the completion of the demographic questionnaire.

Training

Subjects were first trained on how to use the VAS scale, because most participants were more familiar with the traditional Likert scale. To train how to use the VAS, the participants were informed the aim of the study was to measure their reaction to some audio-files. They were informed that instead of choosing an option from 1 to 5, they were to place a vertical line on the long horizontal line. This procedure was practiced with two demonstration questions. Feedback was provided explaining whether the mark provided was correct or incorrect (e.g., an “x” or “check mark”). The practice items asked the participants to rate the warmth and loudness of the testing room, two subjective items. Any additional questions were answered prior to the presentation of the speech samples.

Use of the VAS Scale

A score to the far left on the VAS indicated a negative response whereas a score to the far right of the VAS indicated a positive response. For example, the first question, about how well a child tells their story, had the option “not well” on the far left and “very

well" on the far right. Scores towards the midline, near the 50 millimeter marker, were considered neutral. The range of possible scores was 0-100 millimeters, with 0 at the extreme left and 100 at the extreme right. Each response was hand-measured with a digital caliper that displayed the length of the line from the far left to the hash mark provided to the hundredth of a millimeter. Each answer was rounded to the nearest whole millimeter based on the tenth place (e.g., if the answer was 10.51, it was rounded to 11 and if the answer was 10.43, it was rounded to 10). On some occasions, the hash marks provided did not bisect the 100 millimeter VAS line (e.g., hovered just above the line). In those instances, the line was extended to determine where it would have pierced the VAS line had it been completed. This procedure was used for two completed protocols.

Reliability

Twenty percent of the data (*N*=6) was checked for interrater reliability. The samples chosen for reliability were randomly selected by entering numeral codes into www.random.org. The numbers were randomized twice, once was for the MWCTD group and once for the MWCD group. The procedure for calculating reliability followed the procedure for original calculation such that the scorer scored all narrative questionnaires before scoring the demographic questionnaires. The type of reliability calculated was point-by-point. On the response questionnaire, a given data point was considered correct if the first and second scorer provided measurements that were within one millimeter. Adding up all the agreements and dividing them by the total number of tick marks calculated the reliability for the narrative questionnaire. The total reliability score for the narrative questionnaire was 99.8%. The total reliability score for the

demographic questionnaire was 95.6%.

Scores from both questionnaires were entered into the statistical analysis program SPSS to analyze the data. Data entry included one person entering the data and one person checking accuracy, to ensure that mistakes were not made.

Table 1: Listener Characteristics

	Mother's Education Level*	Age	# Children	Race/Ethnicity	% Mom's w/a Disability	Employment Status
MWCTD (N=29)	4.41[a] (1.73)[b] 2-7[c]	39.48 (6.49) 30-56	3.31 (1.29) 1-7	White: 96.6% (N=28) Hispanic/Latino: 3.4% (N=1)	Yes: 13.8% (N=4) No: 86.2% (N=25)	Homemaker: 37.9%
MWCD (N=31)	4.65 (1.66) 1-7	37.68 (4.93) 30-51	3.29 (1.62) 1-8	White: 96.8% (N=30) Hispanic/Latino: 3.2% (N=1)	Yes: 25.8% (N=8) No: 74.2% (N=23)	Homemaker: 29%

*1=9th, 10th, 11th grade, 4=1 year college, no degree, 7=master's degree
[a]Mean [b]SD [c]Range

Table 2: Listener Employment Status

Area	MWCD[a]	MWCTD[b]
Homemaker	9[c]	11
Student	1	1
Education: K-12	1	0
Education: Other	1	2
Finance & Insurance	3	3
Government and Public Office	1	0
Health Care & Social Assistance	3	1
Legal Services	1	0
Manufacturing: Computer & Electronics	1	0
Retail	1	0
Telecommunications	1	0
Small Business Owner	1	0
Real Estate, Rental, or Leasing	0	1
Human Resources	0	1
Collections	0	1
Secretarial/Receptionist	0	1
Office Manager	1	0
Multiple	6	7
Total	31	29

[a]Mothers with children who are disabled
[b]Mothers with children who are typically developing
[c]Frequency of option selected

Table 3: Rater Self-Identified Disabilities

Disability Type	**MWCD**[a]	**MWCTD**[b]	**Total**[c]
Emotional	2[d]	2	4
Communication/language	0	1	1
Learning	1	0	1
Sensory	1	0	1
Behavioral and Emotional	1	0	1
Emotional and Autism	1	0	1
Behavioral	2	0	2
Missing/None Selected	0	1	1
Total	8	4	12

[a]Mothers with children who are disabled
[b]Mothers with children who are typically developing
[c]Combined totals
[d]Frequency of option selected

Table 4: Speaker Characteristics

	SLI	**ADHD**	**TD**
Age (years; months)	7; 2	7; 1	7; 9
Maternal Education	Bachelor's Degree	Some College	Some College
Nonverbal IQ [a]	94	99	100
PCC [b]	93	92.5	100
% Grammatical T-Unit [c]	42.86	90	83.34
Behavioral [d]	50	62	50
Verbal [e]	11	17	23
Grade	1	1	2

[a] Naglieri Nonverbal Ability Test, standard score (*M*=100, *SD*=15). [b] Percent Consonant Correct (total correct consonants/total consonants). [c] Percent Grammatical T-Units. [d] Child Behavior Checklist, DSM-ADHD syndrome scale. [e] Clinical Evaluation of Language Fundamentals-Fourth Edition.

III. RESULTS

VAS ratings provided by the participants ranged from 0 to 99, indicating that the whole scale was utilized. Descriptive statistics, including means, standard deviations, and ranges were calculated for each item on the questionnaire and for each speaker (SLI, ADHD, TD) and rater (MWCTD, MWCD) group (Appendices D-1 to D-3). For all narrative questionnaires across speaker group, box plots were generated to check for outliers (Appendix E). Following established conventions (Hoaglin & Iglewiez, 1987), only those scores that were more than 2.25 standard deviations away from the group means were considered for exclusion. Extreme scores of this magnitude did not occur, so all data were used. However, "mild outliers" (i.e., 1.5 standard deviations outside the expected mean) were observed across several speaker group and question types. The SLI and speaker with ADHD had mild outliers for parent/family attributes and speaker attributes. The speaker who was TD also had mild outliers related to the narrative quality. See Appendix E.

Questions were designed to be associated with one of six categories extrapolated from previous investigations: narrative quality, narrative form, academic attributes, social attributes, behavioral attributes, and parent/family attributes. A reliability analysis using Chronbach's α revealed that these composites were suitable and all questions could be used, except Question #14, "How often do you think this child gets into trouble?" This question reduced the Chronbach's α for the behavioral composite to an unsatisfactory

level (.433) and was therefore removed from that composite. See Table 5 for a summary of these composites.

Observed Differences Between Groups

A 2 (MWCTD and MWCD) X 3 (SLI, ADHD, TD) mixed model ANOVA revealed no effect for group or group by speaker interaction effect for speaker (SLI, ADHD, TD). Contrary to predictions, ratings were not affected by the mother's status as having or not having a child with a disability. Therefore, the null hypothesis could not be rejected.

Observed Differences Within Groups

Main effects for speaker (SLI, ADHD, TD) were found across all composites within subjects. This finding confirmed previous reports in that higher ratings were consistently assigned to the speaker who was TD as compared to the clinical groups. See Figures 1 to 6 and Tables 6 to 17.

Narrative composites: SLI = ADHD <TD; ADHD < SLI < TD

Follow-up pairwise analyses (Sidak, $p < .05$) were used to test significant differences between the speaker with SLI and the speaker with ADHD. It was predicted that the SLI group would be rated more poorly on questions related to narrative quality and narrative form. In actuality, the quality of the narrative produced by the speaker with SLI was viewed significantly more favorably than that produced by the speaker with ADHD. There was a nonsignificant trend favoring the speaker with SLI across the items from the narrative form composite, which was surprising given that his narrative included considerably more grammatical errors.

Speaker and family attributes: SLI=ADHD<TD; ADHD < SLI < TD

The mixed model ANOVA confirmed the hypothesis that both clinical speakers would be rated worse than the speaker who was TD on all questions not related to the quality or form of the narrative. This pattern was confirmed across the speaker attributes, social attributes, behavioral attributes, and the parent/family attributes composites. Follow-up pair-wise analyses revealed that the speaker with ADHD was rated significantly lower than the speaker with SLI on the behavioral attributes composite. Question 15, about the child's distractibility in class, was also more favorable for the speaker with SLI as compared to the ADHD sample.

Exploratory and Supplemental Analyses

Composite difference scores

Because differences between groups were not found based on rater status as having or not having a child with a disability, additional analyses were completed to explore other potential differences that might have influenced raters' judgments. First, ratings from the MWCD and MWCTD groups were combined and correlations among the speaker composites and the demographic questions were used to identify potential predictors (Tables 18 to 23).

Education level was positively associated with all composite scores for the speaker who was TD. Observed associations were modest: narrative quality composite (r =.310, p >.05), narrative form composite (r =.322, p>.05), academic attributes composite (r =.337, p >.01), social attributes composite (r =.305, p >.05), behavioral attributes composite (r

=.366, p >.01), and parent/family attributes composite (r =.421, p >.01). These findings suggest that listeners with higher educational levels tended to assign higher scores to the speaker who was TD. The speaker who was TD also received higher scores based on the number of people the rater had been exposed to with a disability on the narrative quality composite (r =.324, p >.05) and based on the total number of types of disabilities they were exposed to on the narrative quality composite (r =.377, p >.05), academic attributes composite (r =.279, p >.05), and the family attributes composite (r =.342, p >.05). A positive correlation was also found between the number of types of disabilities and number of people with disabilities the mother was exposed to and composites for the speaker with ADHD, indicating that those raters with more exposure provided more generous ratings. Specifically, there were modest effects for narrative quality (r =.306, p >.05) and family attributes (r = .260, p >.05) for the total number of different people the mother had exposure to with a disability. Additionally, there was a modest effect for the ADHD narrative quality composite (r =.299, p >.05) and the number of different types of disabilities to which the mother had been exposed. Difference scores, representing ratings for the speaker who was TD minus either the ratings for the speaker with SLI or ADHD, were generated using composite scores to capture the strength of the magnitude of the penalty participants had assigned to the clinical speakers. These variables were made for both clinical speakers for all six composites. Correlations between the composite difference scores and participant's age, educational level, the number of types of disabilities they had been exposed to in their personal relationships and the total number of disabilities exposed to were examined. Significant, yet modest, correlations between demographic variables and the composite difference score were observed within

both clinical speakers (Tables 24 and 25).

Step-wise regression analyses (Table 26) were completed to quantify the relative contributions of age, educational level, and exposure to disabilities to the relative disadvantage participants had assigned to the clinical speakers. For the TD-SLI composite difference scores, educational level was a significant predictor for the academic attributes composite (*r*-squared =.053), behavioral attributes composite (*r*-squared =.076), and the family attributes composites (*r*-squared =.106), accounting for 5-10% of the variation in difference scores. Mother's education level combined with her age were the most significant predictors for the social attributes composite (*r*-squared =.122), accounting for 12% of the variability on this difference score. The variety of types of disabilities to which the mother was exposed was the most significant predictor for the narrative quality attribute (*r*-squared =.098), accounting for 9.8% of variability. There were not any significant predictors for the TD-SLI narrative form composite difference.

For the TD-ADHD difference scores, educational level of the mother was a significant predictor for the narrative form difference (*r*-squared =.076) and behavioral attributes composite difference scores (*r*-squared=.058), accounting for 5-7% of the variability. No other significant predictors were found.

Confidence Nominations

Because judgments elicited about the child speakers and their families had the potential to provoke hesitancy from the participants when they assigned their ratings, information about how confident participants were with their ratings was collected. This design element was consistent with DeThorne and Watkins (2001), when they offered an

"uncertain" option for each question. Rather than doing that for each question, an opportunity to voice concern was provided.

The number of times each questionnaire item was nominated by the rater as their least or most confident answers was calculated (Appendix F). In total there were 3,420 (number of raters x number of questions x number of questionnaires) VAS questions posed in this study. However, there were only 540 (3 choices x 3 questionnaires x 60 raters) opportunities for each participant to nominate a question as least confident and 540 opportunities for the participant to nominate a question as most confident. Therefore, in total the "least confident" option was used in 260/540 (48%) trials and the "most confident" option was used in 192/540 (35%) trials.

For the "least confident" responses, 88/260 (33.8%) were for the speaker with SLI, 79/260 (30.4%) were for the speaker with ADHD, and 93/260 (35.8%) were for the speaker who was TD. Thus, concerns appeared to be balanced across speakers. Presentation order did not have an impact on this trend. Only 17/260 (6.5%) nominations were for questions 1-7, questions related to the narrative. The rest of the nominations were for questions related to child or parent attributes. The item nominated the most as one the "least confident" was question 19, which related to estimating the parental income associated with the child speaker.

For the "most confident" responses, 66/192 (34.3%) were for the speaker with SLI, 61/192 (31.8%) were for the speaker with ADHD, and 65/192 (33.9%) were for the speaker who was TD. Thus, confident responses appeared to be balanced across speakers as well. Presentation order, again, did not have an impact on this trend. Only 40/192 (20.8%) were for questions 8-19, questions related to child or parent attributes. Of these,

9/38 (22.5%) were neutral responses between 47 and 53 millimeters. The remaining 31/38 (77.5%) were extreme responses either on the low end (0-34) or high end (60-92). All other nominations for most confident response were related to the narrative content. Question 1, which asked participants to evaluate how well the child speaker told his story overall, received the most nominations. This finding was consistent with the Newman and McGregor (2006) report in which mothers demonstrated high levels of competency in evaluating the integrity of children's narratives.

Between groups 196/452 (43.4%) nominations were given by the MWCTD group and 254/452 (56.2%) were given by the MWCD group. In both groups, the trend was to identify more items as "less confident" than "most confident". Also in both rater groups, all three speaker groups (SLI, ADHD, and TD) had nearly the same number of nominations in each category (most/least confident responses). For the MWCTD, of the 81 most confident nominations, 27 (33.3%) related to the child/parent characteristics. In the MWCD group of the 110 most confident responses, 52 (47.3%) related to the child/ parent characteristics. Overall, it appears that there were not differences between the groups in their confidence ratings (Table 27), contrary to hypothesis #4.

Both groups selected items 18, 19, 12, and 13 as least confident responses and both groups selected 1, 2, 3, 4, 5, and 7 has the most confident responses (Table 27).

Table 5: Composite Summary

Composite Name	Included Item numbers	Chronbach's α*
Narrative Quality Composite (NQC)	1. "How well did the child tell their story?" 2. "How much detail was included?" 3. "How relevant were the details included?" 4. "How well did the child's thoughts flow together?"	**.887: "very good/ excellent"**
Narrative Form Composite (NFC)	5. "How often did this child have fluent speech?" 6. "How correct was their grammar?" 7. "How correct were his speech sounds?"	**.754: "good"**
Academic Attributes Composite (AAC)	8. "How smart do you think this child is?" 10. "How good do you think this child is at their homework?"	**.769: "good"**
Social Attributes Composite (SAC)	12. "How much do you think other children like this child?" 13. "How easy do you think this child makes new friends?" 16. "How often do you think this child is a classroom leader?"	**.839: "very good"**
Behavioral Attributes Composite (BAC)	9. "How trustworthy do you think this child is?" 11. "How likely do you think it is that this child could try harder?" 15. "How frequently do you think this child is distracted in class?"	**.602 "marginal"**
Parent/Family Attributes Composite (PFAC)	17. "How often do you think this child's parent read to him?" 18. "How educated do you think this child's parents are?" 19. "How much money do you think this child's parents make?"	**.856: "very good"**

*Chronbach's α > .90 "excellent", .80 "very good", .70 "good" .60 "marginal", below .60, "unsatisfactory"

Table 6: Narrative Quality Composite-mean and SD

	MWCD	MWCTD
SLI	49.0[a] (14.0)[b]	45.3 (16.0)
ADHD	48.5 (15.6)	43.6 (13.4)
TD	66.0 (11.8)	59.8 (17.2)

[a]Mean [b]SD

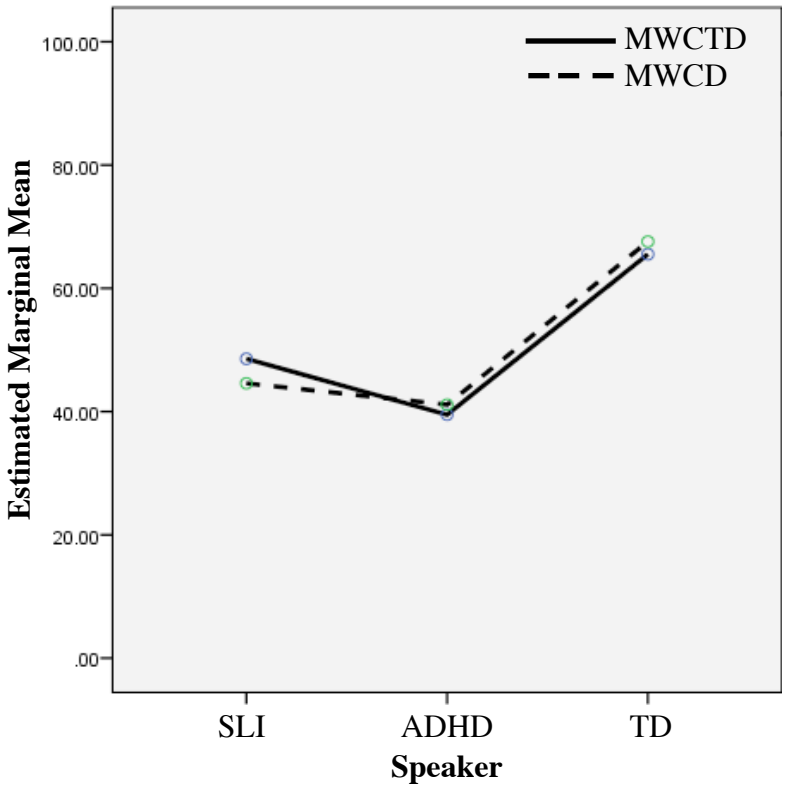


Figure 1: Narrative Quality Composite-ANOVA

Table 7: Narrative Quality Composite-ANOVA

	Sum of Squares	df	Mean Square	*F*	*p*	Partial Eta-Squared
GROUP	570.381	1	570.281	0.988	0.325	.018
SPEAKER *	**39391.279**	**2**	**19695.640**	**95.592**	**<0.001**	**.646**
SPEAKER X GROUP	552.044	2	276.022	1.382	0.256	.025

* Follow-up pairwise comparisons (Sidak) significant at $p < .05$: **ADHD (2) < SLI (1) < TD (3)**

Table 8: Narrative Form Composite-mean and SD

	MWCD	MWCTD
SLI	44.6[a] (18.2)[b]	48.6 (20.4)
ADHD	41.1 (15.9)	39.5 (17.4)
TD	67.6 (22.0)	65.5 (22.6)

[a]Mean [b]SD

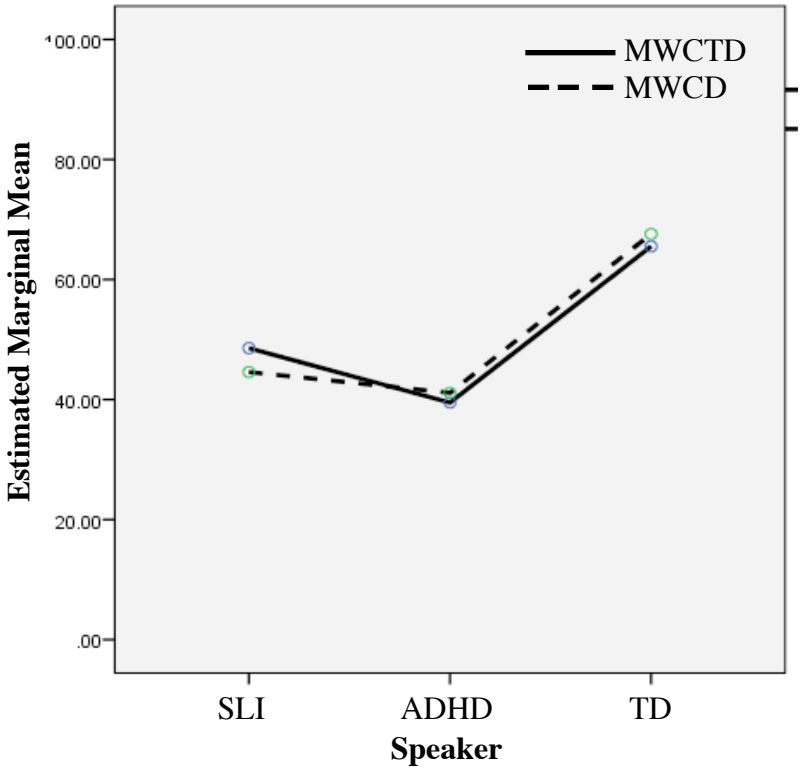


Figure 2: Narrative Form Composite-ANOVA

Table 9: Narrative Form Composite-ANOVA

	Sum of Squares	df	Mean Square	*F*	*p*	Partial Eta-Squared
GROUP	0.406	1	0.406	0.001	0.937	<.001
SPEAKER *	**11966.009**	**2**	**22532.909**	**37.394**	**<0.001**	**.392**
SPEAKER X GROUP	339.117	2	69.64	0.563	0.571	.010

* Follow-up pairwise comparisons (Sidak) significant at $p < .05$: **SLI (1) = ADHD (2) < TD (3)**

Table 10: Academic Attributes Composite-mean and SD

	MWCD	MWCTD
SLI	44.4[a] (17.8)[b]	46.6 (18.6)
ADHD	44.4 (18.0)	48.3 (17.7)
TD	69.1 (13.7)	66.0 (17.5)

[a]Mean [b]SD

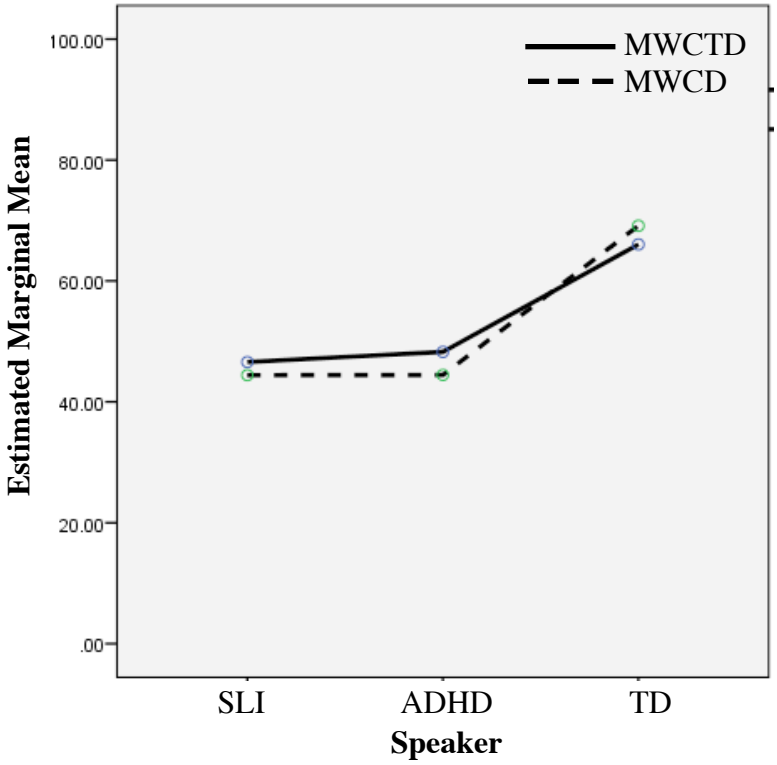


Figure 3: Academic Attributes Composite-ANOVA

Table 11: Academic Attributes Composite-ANOVA

	Sum of Squares	df	Mean Square	*F*	*p*	Partial Eta-Squared
GROUP	41.871	1	41.871	0.087	0.769	.001
SPEAKER *	**18761.265**	**2**	**9380.633**	**45.463**	**<0.001**	**.439**
SPEAKER X GROUP	390.965	1	195.483	0.947	0.391	.016

* Follow-up pairwise comparisons (Sidak) significant at $p < .05$: **SLI (1) = ADHD (2) < TD (3)**

Table 12: Social Attributes Composite-mean and SD

	MWCD	MWCTD
SLI	42.6[a] (16.9)[b]	48.3 (16.4)
ADHD	42.6 (16.9)	48.3 (16.4)
TD	65.0 (13.7)	64.8 (16.4)

[a]Mean [b]SD

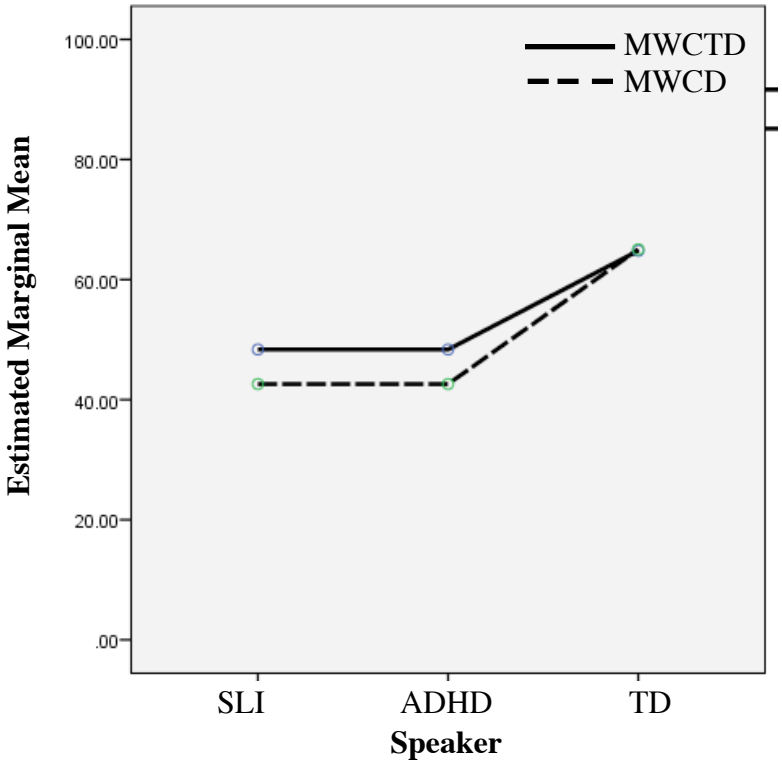


Figure 4: Social Attributes Composite-ANOVA

Table 13: Social Attributes Composite-ANOVA

	Sum of Squares	df	Mean Square	*F*	*p*	Partial Eta-Squared
GROUP	211.702	1	211.702	0.517	0.475	.109
SPEAKER *	**13354.065**	**2**	**6677.033**	**40.365**	**<0.001**	**.410**
SPEAKER X GROUP	297.633	2	148.817	0.90	0.410	.015

* Follow-up pairwise comparisons (Sidak) significant at $p < .05$: **SLI (1) = ADHD (2) < TD (3)**

Table 14: Behavioral Attributes Composite-mean and SD

	MWCD	MWCTD
SLI	47.4[a] (12.8)[b]	48.3 (12.8)
ADHD	42.1 (13.8)	42.5 (13.4)
TD	61.1 (12.3)	59.4 (15.7)

[a]Mean [b]SD

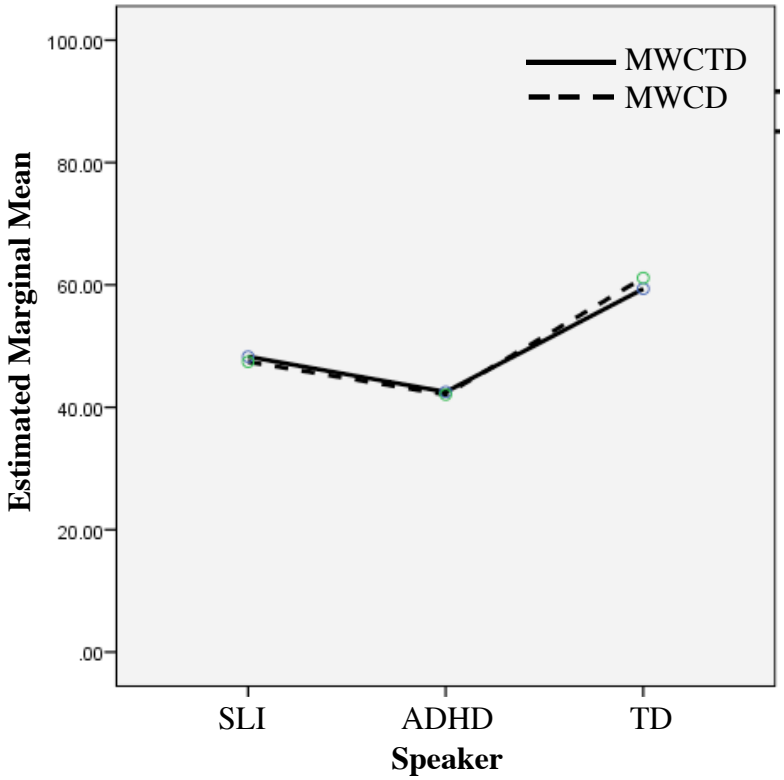


Figure 5: Behavioral Attributes Composite-ANOVA

Table 15: Behavioral Attributes Composite-ANOVA

	Sum of Squares	df	Mean Square	*F*	*p*	Partial Eta-Squared
GROUP	1.259	1	1.259	0.005	0.967	<.001
SPEAKER *	**997.212**	**2**	**4988.606**	**35.035**	**<0.001**	**.381**
SPEAKER X GROUP	58.453	2	29.226	.205	0.815	.004

* Follow-up pairwise comparisons (Sidak) significant at $p < .05$: **ADHD (2) < SLI (1) < TD (3)**

Table 16: Family Attributes Composite-mean and SD

	MWCD	MWCTD
SLI	49.0[a] (14.0)[b]	45.3 (16.0)
ADHD	48.5 (15.6)	43.6 (13.4)
TD	66.0 (11.8)	59.8 (17.2)

[a]Mean [b]SD

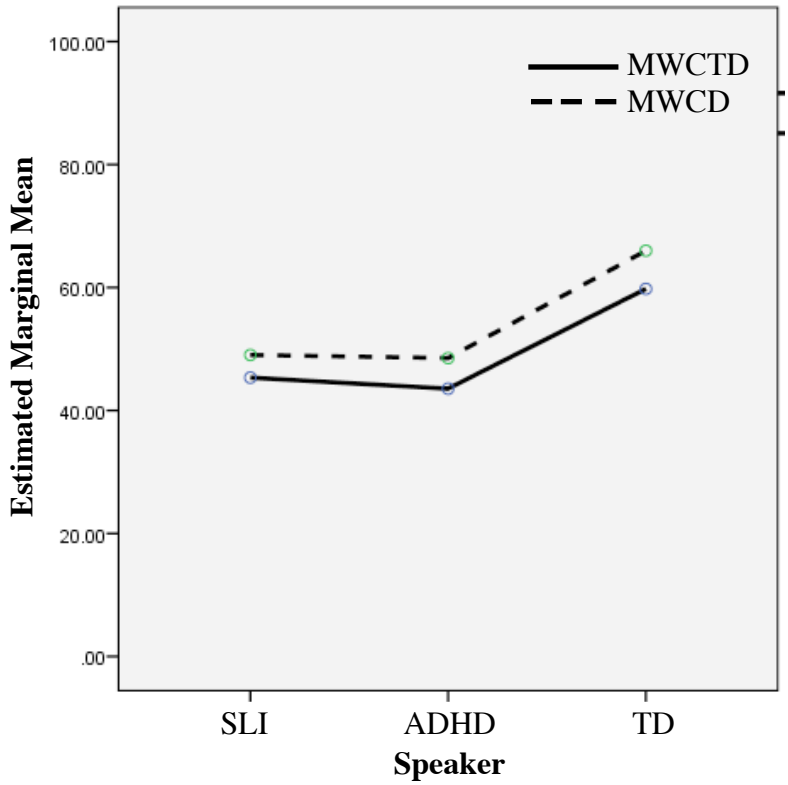


Figure 6: Family Attributes Composite-ANOVA

Table 17: Family Attributes Composite-ANOVA

	Sum of Squares	df	Mean Square	*F*	*p*	Partial Eta-Squared
GROUP	1106.098	1	116.098	2.677	0.107	.044
SPEAKER *	**10610.815**	**2**	**5305.408**	**44.623**	**< 0.001**	**.435**
SPEAKER X GROUP	46.023	2	24.011	0.202	0.817	.003

* Follow-up pairwise comparisons (Sidak) significant at $p < .05$: **SLI (1) = ADHD (2) < TD (3)**

Table 18: Correlations-SLI Composites with Mom's Ed and Mom's Age

	Ed[a]	Age[b]	NQC[c]	NFC[d]	AAC[e]	SAC[f]	BAC[g]	FAC[h]
Ed	1	-.083	.169	.025	-.037	-.016	.015	.036
Age	-.083	1	-.093	.061	-.099	-.175	-.067	-.198

* $p < .05$ (2-tailed)
** $p < .01$ (2 tailed)
[a] Mother's education level. [b] Mother's Age. [c] Narrative Quality Composite. [d] Narrative Form Composite. [e] Academic Attributes Composite. [f] Social Attributes Composite. [g] Behavioral Attributes Composite. [h] Family Attributes Composite

Table 19: Correlations-ADHD Composites with Mom's Ed and Mom's Age

	Ed[a]	Age[b]	NQC[c]	NFC[d]	AAC[e]	SAC[f]	BAC[g]	FAC[h]
Ed	1	-.083	.175	-.015	.093	-.016	.090	.207
Age	-.083	1	.036	-.010	.066	-.175	.076	-.091

* $p < .05$ (2-tailed)
** $p < .01$ (2 tailed)
[a] Mother's education level. [b] Mother's Age. [c] Narrative Quality Composite. [d] Narrative Form Composite. [e] Academic Attributes Composite. [f] Social Attributes Composite. [g] Behavioral Attributes Composite. [h] Family Attributes Composite

Table 20: Correlations-TD Composites with Mom's Ed and Mom's Age

	Ed[a]	Age[b]	NQC[c]	NFC[d]	AAC[e]	SAC[f]	BAC[g]	FAC[h]
Ed	1	-.083	**.310***	**.322***	**.337****	**.305***	**.366****	**.421****
Age	-.083	1	-.184	-.090	-.009	.171	.007	-.106

* $p < .05$ (2-tailed)
** $p < .01$ (2 tailed)
[a] Mother's education level. [b] Mother's Age. [c] Narrative Quality Composite. [d] Narrative Form Composite. [e] Academic Attributes Composite. [f] Social Attributes Composite. [g] Behavioral Attributes Composite. [h] Family Attributes Composite

Table 21: Correlations-SLI Composites with Mom's Exposure to Disabilities

	Relations[a]	Types[b]	NQC[c]	NFC[d]	AAC[e]	SAC[f]	BAC[g]	FAC[h]
Relations	1	**.737****	.040	-.061	.026	.019	.043	.135
Types	**.737****	1	.027	-.111	.057	.066	-.004	.052

* $p < .05$ (2-tailed)
** $p < .01$ (2 tailed)
[a] The total amount of exposure the mom has to disabilities by relations. [b] The total amount of exposure the mom has to disabilities by disability types. [c] Narrative Quality Composite. [d] Narrative Form Composite. [e] Academic Attributes Composite. [f] Social Attributes Composite. [g] Behavioral Attributes Composite. [h] Family Attributes Composite

Table 22: Correlations-ADHD Composites with Mom's Exposure to Disabilities

	Relations[a]	Types[b]	NQC[c]	NFC[d]	AAC[e]	SAC[f]	BAC[g]	FAC[h]
Relations	1	**.737****	**.306***	.103	.047	.019	.125	**.260***
Types	**.737****	1	**.299***	.187	.104	.066	.108	.152

* $p < .05$ (2-tailed)
** $p < .01$ (2 tailed)
[a] The total amount of exposure the mom has to disabilities by relations. [b] The total amount of exposure the mom has to disabilities by disability types. [c] Narrative Quality Composite. [d] Narrative Form Composite. [e] Academic Attributes Composite. [f] Social Attributes Composite. [g] Behavioral Attributes Composite. [h] Family Attributes Composite

Table 23: Correlations-TD Composites with Mom's Exposure to Disabilities

	Relations[a]	Types[b]	NQC[c]	NFC[d]	AAC[e]	SAC[f]	BAC[g]	FAC[h]
Relations	1	**.737****	**.324***	.216	.149	.143	-.021	0.225
Types	**.737****	1	**.377****	.150	**.279***	.191	.088	**.342****

* $p < .05$ (2-tailed)
** $p < .01$ (2 tailed)
[a] The total amount of exposure the mom has to disabilities by relations. [b] The total amount of exposure the mom has to disabilities by disability types. [c] Narrative Quality Composite. [d] Narrative Form Composite. [e] Academic Attributes Composite. [f] Social Attributes Composite. [g] Behavioral Attributes Composite. [h] Family Attributes Composite

Table 24: Correlations between TD-SLI Difference Scores and Demographic Predictors

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1. Age	--	-.083	-.116	-.174	-.091	-.115	.073	**.280***	.072.	.084
2. Ed Level		--	.195	.220	.121	.242	**.263***	.246	**.303***	**.349****
3. Disability: Total			--	**.737****	**.278***	.217	.082	.092	-.046	.081
4. Disability: Types				--	**.338***	.199	.147	.089	.079	**.262***
5. Narr. Quality (TD-SLINQC)					--	**.455****	**.579****	**.404****	**.369****	**.428****
6. Narr. Form (TD-SLINFC)						--	**.499****	.241	**.404****	**.278***
7. Academic Attributes (TD-SLIAAC)							--	**.716****	**.694****	**.673****
8. Social Attributes (TD-SLISAC)								--	**.530****	**.720****
9. Behavioral Attributes (TD-SLIBAC)									--	**.556****
10. Family Attributes (TD-SLIPFAC)										--

* $p < .05$ (2-tailed)
** $p < .01$ (2 tailed)

Table 25: Correlations between TD-ADHD Difference Scores and Demographic Predictors

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1. Age	--	-.083	-.116	-.174	.027	-.074	.073	.174	-.027	-.016
2. Ed Level		--	.195	.220	-.199	**.303***	.201	.253	**.272***	.204
3. Disability: Total			--	**.737****	-.030	.126	.082	.093	-.116	-.030
4. Disability: Types				--	-.064	.009	.140	.129	-.006	.180
5. Narr. Quality (TD-ADHDNQC)					--	-.047	-.260	-.208	-.080	-.123
6. Narr. Form (TD-ADHDNFC)						--	**.306***	.201	**.342****	.212
7. Academic Attributes (TD-ADHDAAC)							--	**.713****	**.619****	**.688****
8. Social Attributes (TD-ADHDSAC)								--	**.387****	**.755****
9. Behavioral Attributes (TD-ADHDBAC)									--	**.587****
10. Family Attributes (TD-ADHDPFAC)										--

* $p < .05$ (2-tailed)

** $p < .01$ (2 tailed)

Table 26: Demographic Predictors for TD-SLI Difference Scores, Stepwise Regression

NARRATIVE QUALITY					
Model	**Variables**	**Adjusted R Square**	**df**	**F**	**Significance**
1	Disability: Types	.098	1, 56	7.216	.009
ACADEMIC ATTRIBUTES					
Model	**Variables**	**Adjusted R Square**	**df**	**F**	**Significance**
1	Ed Level	.053	1,58	4.314	.042
SOCIAL ATTRIBUTES					
Model	**Variables**	**Adjusted R Square**	**df**	**F**	**Significance**
1	Age	.063	1,58	4.939	.03
2	Age				
	Ed Level	.122	2,57	5.085	.009
BEHAVIORAL ATTRIBUTES					
Model	**Variables**	**Adjusted R Square**	**df**	**F**	**Significance**
1	Ed Level	.076	1,57	5.778	.02
FAMILY ATTRIBUTES					
Model	**Variables**	**Adjust R Square**	**df**	**F**	**Significance**
1	Ed Level	.106	1,58	8.019	.006

Note: No significant predictors found for NARRATIVE FORM

Table 27: Most and Least Confident Responses

	MWCTD	**MWCD**
Total Nominations	196/452 (43.4%)	254/452 (56.2%)
Least Confident	Total: 115/196 (58.7%) Narrative [a]: 12/115 (10.4%) Child/parent [b]: 105/115 (91.3%)	Total: 144/254 (56.7%) Narrative: 7/144 (4.9%) Child/parent: 137/144 (95.1%)
Most Confident	Total: 81/196 (41.3%) Narrative: 71/81 (87.7%) Child/parent: 10/81 (12.3%)	Total: 110/254 (43.3%) Narrative: 81/110 (73.6%) Child/parent: 29/110 (26.4%)
Most Common Nominations	Least: 18/19, 9, 13, 11, 12 Most: 1, 2, 4/5, 3/7	Least: 19, 18, 15, 12, 13/17 Most: 4, 2, 1, 3/5, 7

[a]Total nominations related to narrative questions
[b]Total nominations related to child and parent attributes

IV DISCUSSION

This study examined negative attributes being assigned to child speakers with SLI, ADHD, and TD after listening to a 1-minute narrative sample. Two groups participated: mothers who have a child with a disability (MWCD) and mothers of children with typical development (MWCTD). The use of mothers who varied in their rate of personal experiences with disabilities represented a unique design feature of this study. Previous studies have primarily examined the role of professional training. Another unique element to this project was the inclusion of a child speaker with ADHD. The child speakers who provided the stimuli for this study were also older than those associated with previous reports.

It was hypothesized that mothers with exposure to disabilities through their own children would be less apt to make pejorative judgments about child and parent attributes based on such a short sample. Unexpectedly, main group effects were not found - the clinical speakers were consistently judged more pejoratively than the speaker who was TD, no matter the listening group and no matter the areas being rated. It is unlikely that the failure to find groups differences in this study were due to limitations in sample size. Group means were very similar, suggesting that additional participants would probably not create group differences. Participants also used the full range of the VAS in their answers, so variability was sufficient to observe group differences if they were there.

Other factors that influenced rater responses were found. First, education level was

associated with more positive scores for the child speaker who was TD. Previous studies have typically matched respondents for education level (e.g., DeThorne & Watkins, 2001; Rice et al., 1996) so this finding lends support to the role that education level plays in evaluating child speakers. Education level was also significantly related to the difference scores between each clinical speaker and the speaker who was TD. This indicated that education level may cause one to be more sensitive to the difference between an "average story" and a "below average story."

Status as having a child with a disability did not influence participant's ratings; however, personal experience with disabilities may have influenced ratings. Mothers who reported more exposure to people with disabilities in their personal relationships tended to give the child speaker with TD higher scores. Also, mothers with exposure to a wider variety of types of disabilities gave higher scores to the speaker who was TD and lower scores to the speaker with ADHD (as compared of the speaker with SLI). The number of types of disabilities also accounted for some of the variability in the difference scores between the TD and speaker with SLI. These findings for child speakers with communication disorders are consistent with Gilbride's (1993) general proposal that contact variables influence adults' negative attributions to children with disabilities.

Of note, age of the participant rater also helped to account for some of the differences in scores between the speaker who was TD and the speaker with SLI but not the speaker with ADHD. That is, older mothers had a larger difference between the SLI and TD scores. This represents another new finding.

The child speaker with ADHD was judged lower than the speaker with SLI on the narrative quality and behavioral attributes composites. This outcome on the narrative

quality composite was surprising because the speaker with SLI had many more grammatical errors than the speaker with ADHD. This indicates that the participants penalized speakers more for disorganization rather than morpho-syntactic errors. This was emphasized by one of the participants commenting in the space provided to nominate most and least confident responses that she felt like the recording started at the incorrect place on the MP3 player. In actuality, the speaker with ADHD began his story by stating the ending rather than including an introduction.

It was encouraging that for the child/family attributes questions, participants sometimes selected a neutral center rating, or indicated a least confident response. This option was also given in the DeThorne and Watkins (2001) study. The presence of strong negative attributions to child speakers with communication disorders in previous reports may have been partially due to the inability of raters to "opt out" of assigning a rating. Nonetheless, this nomination option was rarely selected and in some cases questions related to speaker and family attributes were nominated as one of the participants' most confident response even when an extreme response was provided.

Even though child speakers were matched on nonverbal IQ and maternal education, there were still uncontrolled differences. In both clinical speakers, there were age appropriate speech sound errors, whereas the narrative provided by the child speaker with typical development was free of speech sound errors. It is possible that speech differences contributed to differences between the speakers with SLI and ADHD and the speaker with TD. However, there are some issues that complicate this interpretation. First, speech differences associated with the narratives used in this study were small and considerably less marked than in previous studies focusing on biases associated with speech sound

disorders (Overby et al., 2007). In this study, the question related to the correctness of the speech sounds increased the narrative form composite's Cronbach's Alpha. For the composite, the questions related to speech sounds for each speaker the Chronbach's Alpha was .754 versus .738 without the speaker with SLI, .714 without the speaker with ADHD, and .716 for the speaker who was TD. Therefore, speech sound differences appeared to contribute a modest amount to the observed differences between child speakers.

Although there were also age and grade differences favoring the speaker with TD, it is unlikely that this represented the main reason for the observed differences in ratings. According to the TNL, these narratives would be evaluated by the same age-norms and the narratives produced by both the speaker with SLI and the speaker with ADHD were well below normal limits. Using naturally occurring narratives provided by child speakers with different cognitive profiles offers several advantages, but it does introduce practical limitations in the extent to which speakers and samples can be matched across all potential variables. An alternative would be to present listeners with speech samples provided by child actors (e.g., Overby et al., 2007). Trade-offs would include the possibility that the narratives are not representative of the groups, and that potentially important cues on which listeners rely on would also be missing.

Another potential weakness of this study is related to the phrasing used on the demographic questionnaire. Namely, the word "disability" was provided to participants to describe themselves, their children, their family, and their friends. Unfortunately, this term might have been associated with more severe disabilities than those related to communication. Perhaps the phrase should have been "disability or difference" to ensure

that participants did not skip questions due to their personal connotations with the term "disability."

Continued research into the factors responsible for negative attributions to child speakers with communication disorders is important for several reasons. First, there is clear consensus in the literature: negative attributes are readily assigned by adults to children with language disorders, regardless of the adult's background or their professional training. This includes speech language pathologists – who should be more sensitive to the idea of language/speech disorders being divorced from intellect and/or particular social status. It also appears to include mothers of children with disabilities who would also be expected to be more sensitive to the ramifications of these pejorative judgments as related to their own children.

Next, people willingly assign negative attributes to speakers with communication disorders solely on the basis of brief 1-minute speech samples. These pejorative snap judgments include the social and academic attributes of the child and parental attributes. Overall, these judgments lend themselves to a highly disadvantaged child, in numerous ways, rather than a child with a specific communicative weakness. These pejorative assumptions were simply not true with the samples from the present study. Nonetheless, the findings are consistent with other studies linking stereotypes/pejorative judgments to dialect, race, and gender.

Most importantly, it is possible that these negative attributions help set the stage for long-term negative consequences for individuals with language disorder from preschool to adulthood including limited job prospects, social isolation, and legal difficulties. Professionals and parents, to provide the best and most correct form of support, must be

aware of these judgments. In doing so, they will help correct/compensate for the language disorder and reduce the additional, unfounded penalties being leveraged against their children.

APPENDIX A

ORTHOGRAPHIC AND PHONETIC TRANSCRIPT OF LANGUAGE SAMPLES

Table 28: Orthographic and Phonetic Transcript of Language Samples

	Orthographic	Phonemic
SLI	They went back, they went to, they went to home after school	ðe wɛnt bæk θe wɛnt tu, θe wɛnt tu hom æftɚ skul
	Mom said, “What...Where where you...Where you like to go?”	mɑm sɛd wət wɛɚ ju wɛɚ ju lɑɪk tu go
	They shout, “McDonalds!”	ðe ʃɑʊt mɪkdɑnlds
	They went in the car went to McDonalds	ðe wɛnt ɪn θə kɑr wɛnt tu mɪkdɑnlds
	The kid said, “I want a bi a hamburger”	ðə kɪd sɛd aɪ want ə bɪ ə hæmbɚgɚ
	The mom said, “I want a salad.”	ðə mɑm sɛd aɪ want ə sælɪd
	The, the other kid wanted a Happy Meal and a…Coke	ðə ə ðɚ kɪd wantɪd ə hæpi mil ænd ə kok
TD	When Lisa got home their mother said, “we’re going out to dinner”	wɛn lisə gat hom ðɛɚ məðɚ səd wɪɚ goiŋ aʊt tu dɪnɚ
	“where do you want to go?”	wɛɚ du ju want tu go
	Lisa shouted, “Mickanddonald’s”	lisə ʃɑʊtɪd mɪkænd danlds
	They both hoppeded in the car	ðe boθ haptɪd ɪn ðə kar
	And their mother drove them to the nearest Mickanddonald’s	ænd ðɛɚ məðɚ dəʊv ðɛm tu ðə nɪəɪst mɪkænd danlds
	Lisa couldn’t, didn’t know what to order	lisə kʊdnt dɪdnt no wət tu ordɚ
	And...and her brother went to order	ænd ænd hɚ brəðɚ wɛnt tu ordɚ
	when they got up to the counter	wɛn ðe gat əp tu ðə koʊntɚ
	Her, and her mother ordered a salad	hɚ ænd hɚ məθɚ ordɚd ə sælɪd
	And Lisa finally decided she wanted a cheeseburger and a coke with a vanilla shake	ænd lisə faɪnli disaɪdɪd ʃi wantɪd ə tʃɪsbɚgɚ ænd ə kok wɪθ ə vənɛlə eʃk
	When her “that’s twelve dollars and fifty cents,” said the clerk	wɛn hɚ ðæts twɛlv dalɚs ænd fɪfti sɛnts sɛd ðə klɚk
	And their mother reached for the purse	ænd ðɛɚ məðɚ riʃt for ðə pɚs
	And then she realized she had left it home on the counter	ænd ðɛn ʃi riləlaɪzd ʃi hæd lɛft ɪt hom an ðə kaʊntɚ

ADHD	the problem was the m the purse wasn't there	ðə prabləm wəs ðə m ðə pɚs wəsnt ðɛɚ
	And they wanted-d uh a chocolate ice cream cone and um I think a drink	ænd ðe wantɪd d ʌ ə tʃaklɛt aɪs krɪm kon and ʌm aɪ θɪnk ə drink
	They really we needed a drink	ðe rili wi nidɪd ə drink
	They was thirsty	ðe wəs θɚsti
	And um...and um...and um...the, the mother said, "tonight we were going to McDonalds"	ænd ʌm ænd ʌm ænd ʌm ðə ðe məðɚ sɛd tunaɪt wi wɚ goiŋ to mɪkdanlds
	And at night they, they jumped in the car	ænd æt naɪt ðe ðe dʒəmpt ɪn ðə kar
	And the mother forgot her purse	ænd ðə məðɚ fɚgat hɚ pɚs
	And then they drove to McDonald's, the nearest one	ænd ðɛn ðe drov tu mɪkdanlds ðə nɪɚɪst wən
	And they went in	ænd ðe wɛnt ɪn
	And they didn't know what the do to th d decide	ænd ðe dɪdnt no wət ðə du tu θ d dɪsaɪd

APPENDIX B

NARRATIVE QUESTIONNAIRE

Table 29: Narrative Questionnaire

	Question	Source
1	How well does the child tell their story? Not Well Very Well	Rice, M. L., Hadley, P. A., & Alexander, A. L. (1993)
2	How much detail was included? No Detail Every Detail	Newman, R. M., & McGregor, K. K. (2006)
3	How relevant were the details included? Irrelevant Very Relevant	Newman, R. M., & McGregor, K. K. (2006)
4	How well did the child's thoughts flow together? Not Well Very Well	Newman, R. M., & McGregor, K. K. (2006)
5	Avoiding repetitions, and filler words such as "uh" and "um" is considered fluent speech. How often did this child have fluent speech? Never Always	Newman, R. M., & McGregor, K. K. (2006)
6	How correct was their grammar? Very incorrect Very correct	Newman, R. M., & McGregor, K. K. (2006)
7	How correct were his speech sounds? Very incorrect Very correct	Newman, R. M., & McGregor, K. K. (2006)
8	How smart do you think this child is? Below Average Well Above Average	Rice, M. L., Hadley, P. A., & Alexander, A. L. (1993)
9	How trustworthy do you think this child is? Not at all Very	Wenker, R. B., Wegener, J. G., & Hart, K. J. (1996)
10	How good do you think this child is at their school work? Very Poor Very Good	Overby, M., Carrell, T., & Bernthal, J. (2007)
11	How likely do you think it is that this child could try harder? Very likely Not likely	Bebout, L. & Arthur, B. (1992)
12	How much do you think other children like this child? Not very much A lot	Overby, M., Carrell, T., & Bernthal, J. (2007)
13	How easy do you think this child make new friends?	Overby, M., Carrell, T., & Bernthal, J. (2007)

	Not easy	Very easy	
14	How often do you think this child gets into trouble?		Overby, M., Carrell, T., & Bernthal, J. (2007)
	Not often	Very often	
15	How frequently do you think this child is distracted in class?		
	Very often	Not often	
16	How often do you think this child is a classroom leader?		Rice, M. L., Hadley, P. A., & Alexander, A. L. (1993)
	Not very often	Very often	
17	How often do you think this child's parents read to them?		
	Never	Daily	
18	How educated do you think this child's parents are?		Rice, M. L., Hadley, P. A., & Alexander, A. L. (1993)
	Less than high school	Advanced degree	
19	How much money do you think this child's family makes each year?		DeThorne, L. S., & Watkins, R. V. (2001)
	Well below average	Well above average	
20	If any, list a maximum of 3 questions that you feel the least confident in your response. If any, list a maximum of 3 questions that you feel the most confident in your response.		Segebart, L. B. (1996).

APPENDIX C

DEMOGRAPHIC QUESTIONNAIRE

Table 30: Demographic Questionnaire

1. Choose One: ☐ Male ☐ Female 2. In what year were you born? _____ 3. Do you have any children?_____ 4. If yes: how many children do you have? _____	5. Are you hispanic/latino? _____ 6. Check all that apply: ☐ American Indian/Alaskan Native ☐ Asian ☐ Native Hawaiian or other Pacific Islander ☐ Black or African American ☐ White ☐ Other_____

1. Which of the following categories best describes your primary area of employment (regardless of your actual position)?

☐ Homemaker	☐ Education - Primary/ Secondary (K-12)	☐ Manufacturing - Computer and Electronics	☐ Scientific or Technical Services
☐ Retired			☐ Software
☐ Student			☐ Telecommunications
☐ Unemployed	☐ Education - Other Construction	☐ Manufacturing - Other	☐ Transportation and Warehousing
☐ Agriculture, Forestry, Fishing, or Hunting		☐ Military	☐ Utilities
	☐ Finance and Insurance	☐ Mining	☐ Wholesale
☐ Arts, Entertainment, or Recreation	☐ Government and Public Administration	☐ Publishing	☐ Other_____
		☐ Real Estate, Rental, or Leasing	
☐ Broadcasting		☐ Religious	
☐ Education - College, University, or Adult	☐ Health Care and Social Assistance	☐ Retail	
	☐ Health Care and Social Assistance		
	☐ Hotel and Food Services		
	☐ Legal Services		

8. What is the highest degree or level of school you have completed? If currently enrolled, mark the previous grade or highest degree received.

☐ No schooling completed ☐ Nursery school to 8th grade ☐ 9th, 10th or 11th grade ☐ 12th grade, no diploma ☐ High school graduate - high school diploma or the equivalent (for example: GED) ☐ Some college credit, but less than 1 year	☐ 1 or more years of college, no degree ☐ Associate degree (for example: AA, AS) ☐ Bachelor's degree (for example: BA, AB, BS) ☐ Master's degree (for example: MA, MS, MEng, MEd, MSW, MBA) ☐ Professional degree (for example: MD, DDS, DVM, LLB, JD) ☐ Doctorate (for example: PhD, EdD)
9. I myself have a disability. ☐Yes (*If yes, please answer question 10* ☐No *(If no, skip question 10)*	10. My disability is: (Please choose all that apply) ☐Behavioral (such as ADD, ADHD, impulse control or addiction) ☐Emotional (such as depression, anxiety disorder, or schizophrenia) ☐Learning (such as dyslexia, dyscalculia, reading delay, or learning disability) ☐Communication/Language (stutter, lisp, expressive or receptive language, autism spectrum disorder, voice disorder) ☐Mental (including memory loss or other cognitive impairment) ☐Physical (paraplegia, hemiplegia, quadriplegia, loss of function) ☐Sensory (visual, hearing, tactile impairment) ☐Other_____

11. I have a child(ren) with a disability. ☐ Yes (*If yes, please answer questions 12 &13)* ☐ No *(If no, skip questions 12 &13)* 12. How many?_____	13. His/her disability is: (Please choose all that apply) ☐Behavioral (such as ADD, ADHD, impulse control or addiction) ☐Emotional (such as depression, anxiety disorder, or schizophrenia) ☐Learning (such as dyslexia, dyscalculia, reading delay, or learning disability) ☐Communication/Language (stutter, lisp, expressive or receptive language, autism spectrum disorder, voice disorder) ☐Mental (including memory loss or other cognitive impairment) ☐Physical (paraplegia, hemiplegia, quadriplegia, loss of function) ☐Sensory (visual, hearing, tactile impairment) •Other_____
14. I have a family member(s) with a disability (genetically related or not). ☐Yes (*If yes, please answer questions 15 &16)* ☐No *(If no, skip questions 15 &16)* 15. Relation Type: ☐ Spouse ☐ In-law ☐ Aunt/uncle Cousin ☐ Grandparent ☐ Parent ☐ Other_____	16. His/her disability is: (Please choose all that apply) ☐Behavioral (such as ADD, ADHD, impulse control or addiction) ☐Emotional (such as depression, anxiety disorder, or schizophrenia) ☐Learning (such as dyslexia, dyscalculia, reading delay, or learning disability) ☐Communication/Language (stutter, lisp, expressive or receptive language, autism spectrum disorder, voice disorder) ☐Mental (including memory loss or other cognitive impairment) ☐Physical (paraplegia, hemiplegia, quadriplegia, loss of function) ☐Sensory (visual, hearing, tactile impairment) •Other_____

17. I have a friend(s) with disabilities. ☐ Yes (*If yes, please answer question 18)* ☐ No *(If no, skip question 18)*	18. His/her disability is: (Please choose all that apply) ☐Behavioral (such as ADD, ADHD, impulse control or addiction) ☐Emotional (such as depression, anxiety disorder, or schizophrenia) ☐Learning (such as dyslexia, dyscalculia, reading delay, or learning disability) ☐Communication/Language (stutter, lisp, expressive or receptive language, autism spectrum disorder, voice disorder) ☐Mental (including memory loss or other cognitive impairment) ☐Physical (paraplegia, hemiplegia, quadriplegia, loss of function) ☐Sensory (visual, hearing, tactile impairment) •Other_____

19. I have gone to school with people with disabilities.
☐Yes
☐No

APPENDIX D

SLI DESCRIPTIVE STATISTICS FOR NARRATIVE RATINGS

Table 31: SLI Descriptive Statistics for Narrative Ratings

Question	MWCTD	MWCD
How well does the child tell their story?	40.79[a] (20.1)[b] 12-84[c]	40.16 (20.9) 3-85
How much detail was included?	47.31 (21.0) 10-91	50.71 (22.2) 5-92
How relevant were the details included?	55.17 (20.9) 12-88	57.90 (22.6) 16-96
How well did the child's thoughts flow together?	38.45 (22.5) 8-85	35.13 (20.4) 3-90
How often did this child have fluent speech?	48.59 (23.8) 10-98	42.16 (24.3) 0-78
How correct was his grammar?	46.97 (20.7) 15-88	44.32 (21.0) 10-94
How correct were his speech sounds?	50.14 (22.2) 18-99	47.29 (22.7) 4-91
How smart do you think this child is?	45.10 (18.8) 8-83	43.48 (16.9) 3-71
How trustworthy do you think this child is?	61.86 (17.6) 29-89	60.68 (18.8) 28-97
How good do you think this child is at their school work?	48.07 (20.6) 8-86	45.35 (21.5) 1-92
How likely do you think it is that this child could try harder?	43.79 (17.4) 14-81	43.19 (22.24) 1-79
How much do you think other children like this child?	55.07 (16.0) 24-91	47.10 (16.2) 13-93
How easy do you think this child make new friends?	53.41 (17.7) 17-90	43.84 (18.0) 2-90
How often do you think this child gets into trouble?	45.34 (15.8) 8-80	44.97 (19.8) 5-77
How frequently do you think this child is distracted in class?	39.17 (16.6) 11-72	37.42 (18.9) 0-87
How often do you think this child is a classroom leader?	36.55 (20.2) 3-74	36.87 (21.2) 0-86
How often do you think this child's parents read to them?	45.14 (21.0) 6-88	49.29 (19.5) 11-91
How educated do you think this child's parents are?	44.93 (16.37) 9-76	48.90 (13.8) 6-73
How much money do you think this child's family makes each year?	45.97 (13.7) 14-74	48.90 (14.4) 13-76

[a]Mean
[b]Standard Deviation
[c]Range

APPENDIX E

ADHD DESCRIPTIVE STATISTICS FOR NARRATIVE RATINGS

Table 32: ADHD Descriptive Statistics for Narrative Ratings

Question	MWCTD	MWCD
How well does the child tell their story?	30.07[a] (19.5)[b] 2-80[c]	31.42 (17.5) 3-76
How much detail was included?	36.48 (22.5) 2-82	41.55 (20.9) 13-79
How relevant were the details included?	39.18 (22.6) 2-81	43.65 (22.8) 6-95
How well did the child's thoughts flow together?	29.17 (19.4) 2-80	31.39 (20.6) 5-90
How often did this child have fluent speech?	34.90 (23.1) 2-95	42.71 (26.3) 2-93
How correct was his grammar?	39.69 (20.5) 5-89	38.10 (17.0) 4-81
How correct were his speech sounds?	43.90 (21.1) 11-90	41.55 (18.8) 11-81
How smart do you think this child is?	46.86 (17.2) 1-71	43.58 (18.2) 5-76
How trustworthy do you think this child is?	56.21 (17.0) 14-97	57.16 (17.2) 15-88
How good do you think this child is at their school work?	49.66 (20.0) 8-89	45.29 (19.5) 4-78
How likely do you think it is that this child could try harder?	35.72 (17.3) 0-68	36.23 (21.4) 2-80
How much do you think other children like this child?	53.93 (14.4) 14-77	54.32 (14.8) 32-98
How easy do you think this child make new friends?	53.59 (15.6) 20-78	50.61 (18.5) 17-98
How often do you think this child gets into trouble?	40.31 (15.0) 7-72	45.35 (21.8) 3-89
How frequently do you think this child is distracted in class?	35.59 (19.7) 5-81	31.00 (21.1) 0-82
How often do you think this child is a classroom leader?	38.24 (15.9) 4-64	37.87 (22.5) 0-77
How often do you think this child's parents read to them?	41.62 (16.8) 3-75	50.77 (21.2) 5-87
How educated do you think this child's parents are?	45.59 (13.5) 4-67	50.26 (18.1) 3-82
How much money do you think this child's family makes each year?	43.45 (15.0) 5-73	44.52 (14.4) 1-67

[a]Mean
[b]Standard Deviation
[c]Range

APPENDIX F

TD DESCRIPTIVE STATISTICS FOR NARRATIVE RATINGS

Table 33: TD Descriptive Statistics for Narrative Ratings

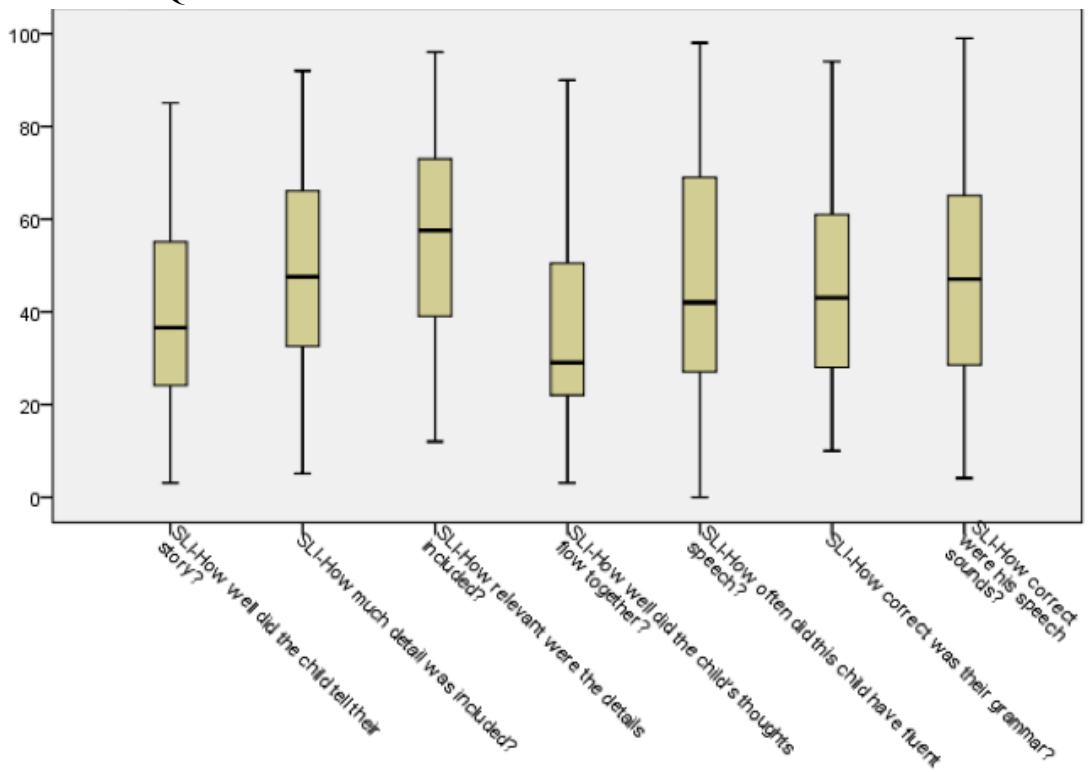
Question	MWCTD	MWCD
How well does the child tell their story?	66.24[a] (22.2)[b] 23-97[c]	76.03 (16.7) 40-98
How much detail was included?	69.97 (18.5) 22-97	76.94 (16.1) 35-97
How relevant were the details included?	67.62 (21.7) 23-96	76.40 (16.0) 39-98
How well did the child's thoughts flow together?	64.86 (24.1) 10-97	71.47 (19.1) 35-97
How often did this child have fluent speech?	63.69 (27.6) 0-97	65.42 (26.1) 0-96
How correct was his grammar?	65.69 (23.8) 2-97	65.71 (26.9) 0-96
How correct were his speech sounds?	67.21 (22.6) 2-96	71.65 (24.0) 0-98
How smart do you think this child is?	65.34 (18.4) 29-96	66.77 (15.3) 31-90
How trustworthy do you think this child is?	66.24 (17.1) 31-94	65.58 (15.3) 40-94
How good do you think this child is at their school work?	66.72 (20.4) 29-96	71.48 (14.7) 36-95
How likely do you think it is that this child could try harder?	52.76 (24.8) 8-96	55.39 (19.4) 17-96
How much do you think other children like this child?	65.97 (16.5) 30-96	64.58 (14.8) 38-97
How easy do you think this child make new friends?	67.17 (16.5) 26-95	67.87 (15.4) 35-96
How often do you think this child gets into trouble?	33.66 (20.0) 0-79	41.58 (19.1) 1-78
How frequently do you think this child is distracted in class?	59.10 (20.9) 12-97	62.03 (20.1) 20-93
How often do you think this child is a classroom leader?	61.31 (19.7) 14-95	62.65 (20.2) 10-93
How often do you think this child's parents read to them?	66.83 (21.6) 20-96	71.68 (17.7) 24-94
How educated do you think this child's parents are?	58.79 (18.2) 11-96	66.48 (14.0) 37-94
How much money do you think this child's family makes each year?	53.79 (16.4) 20-97	59.81 (11.9) 44-87

[a]Mean
[b]Standard Deviation
[c]Range

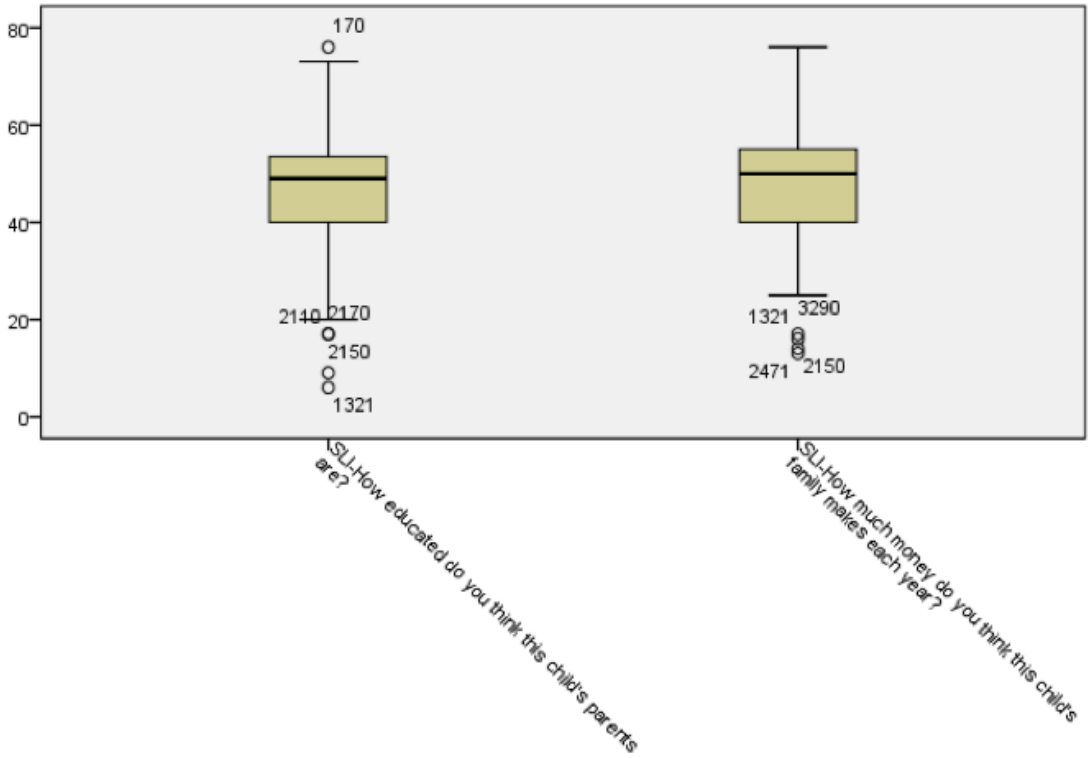
APPENDIX G

BOX PLOTS FOR OUTLIERS

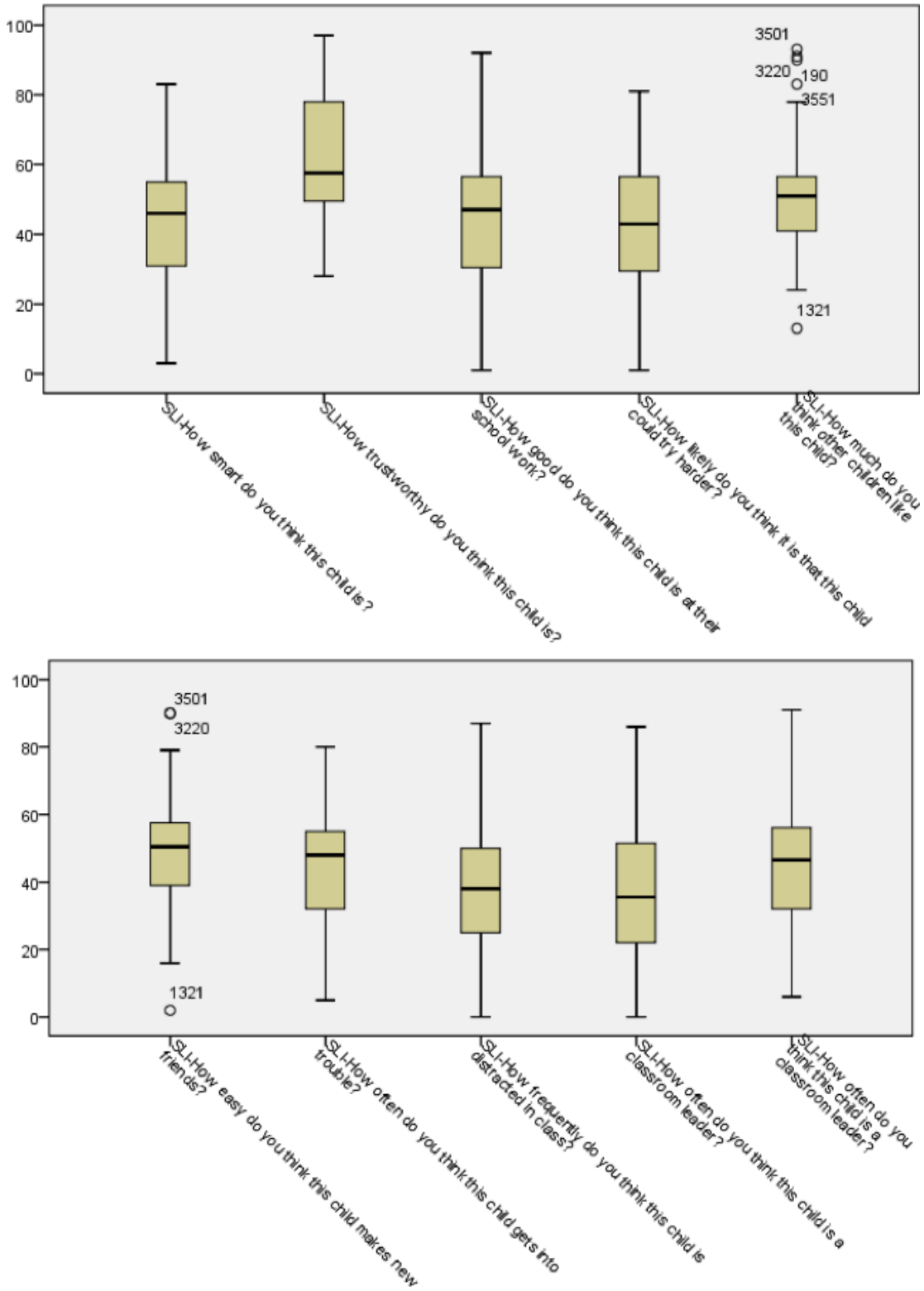
SLI Narrative Questions



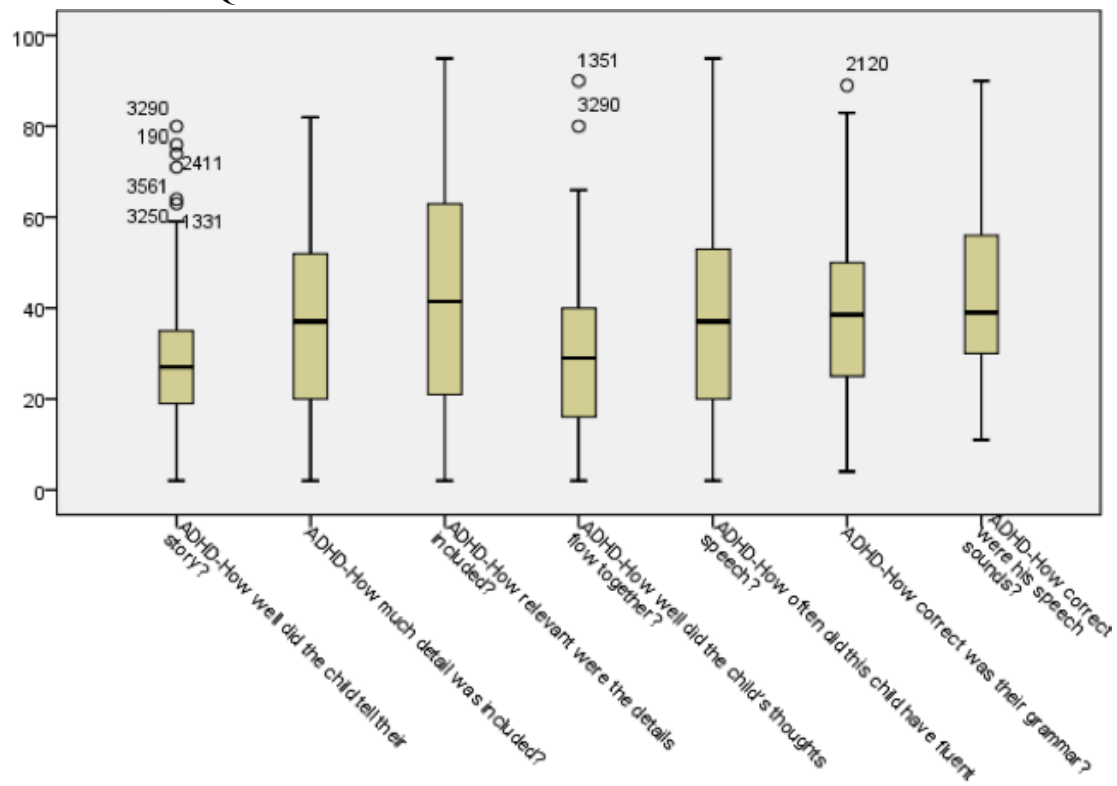
SLI Parent/Family Attributes



SLI Speaker Attributes

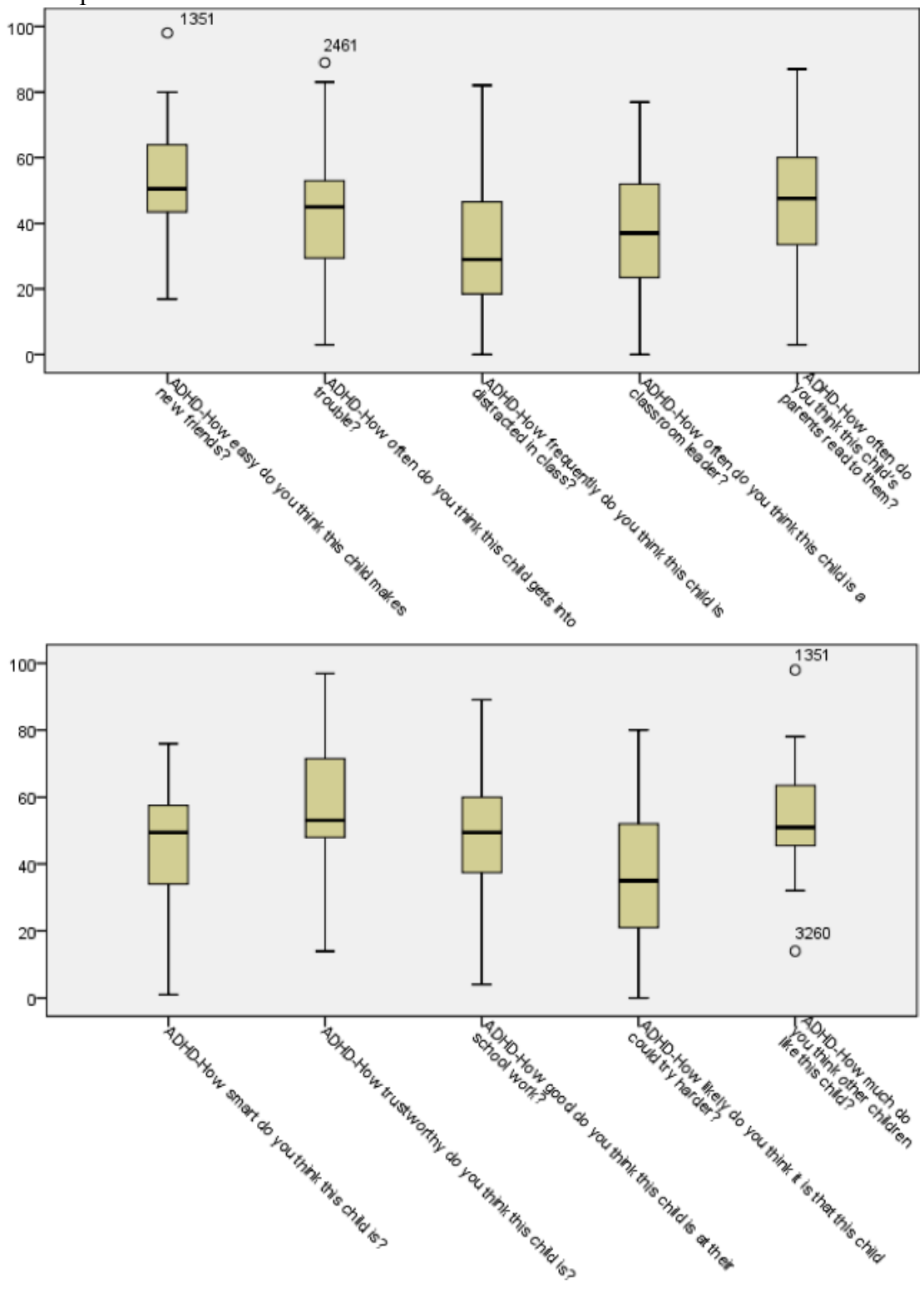


ADHD Narrative Questions

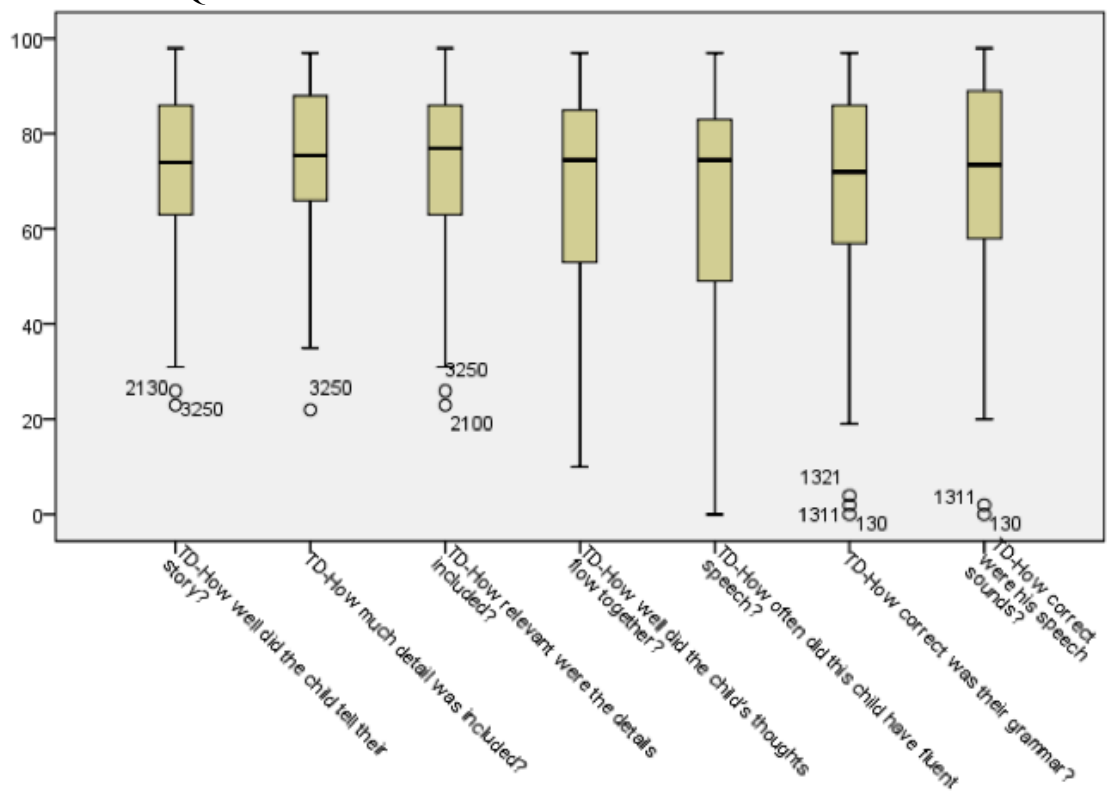


ADHD Parent/Family Attributes

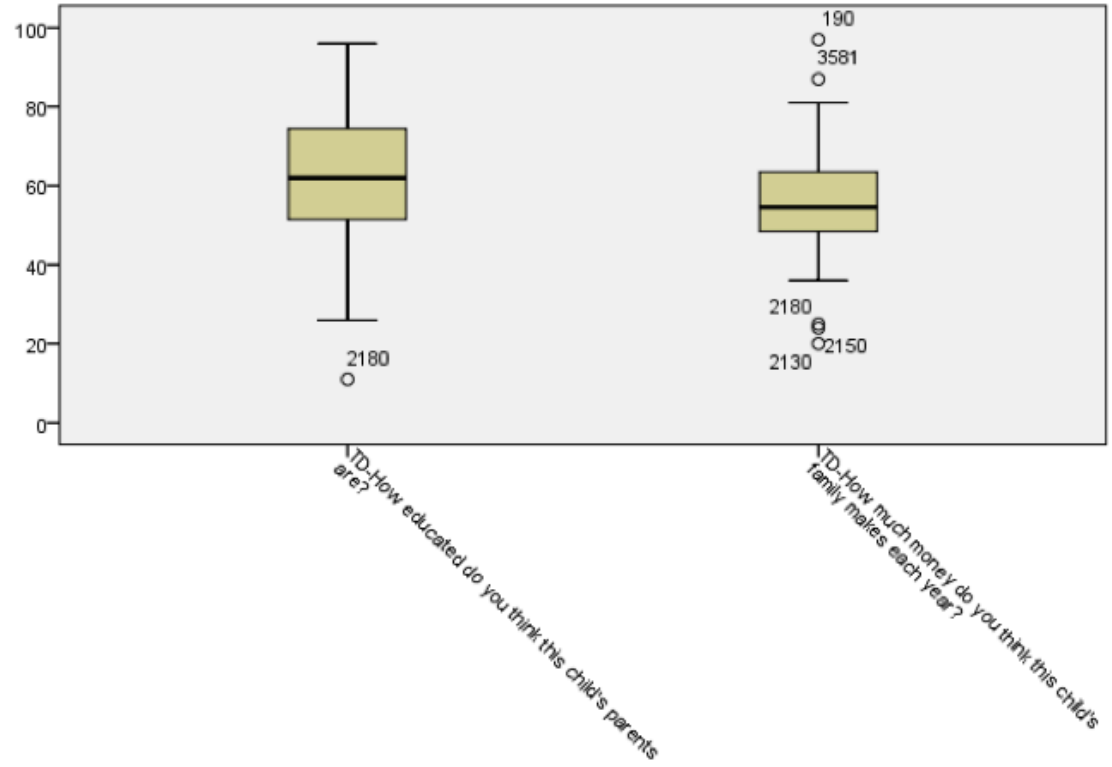
ADHD Speaker Attributes



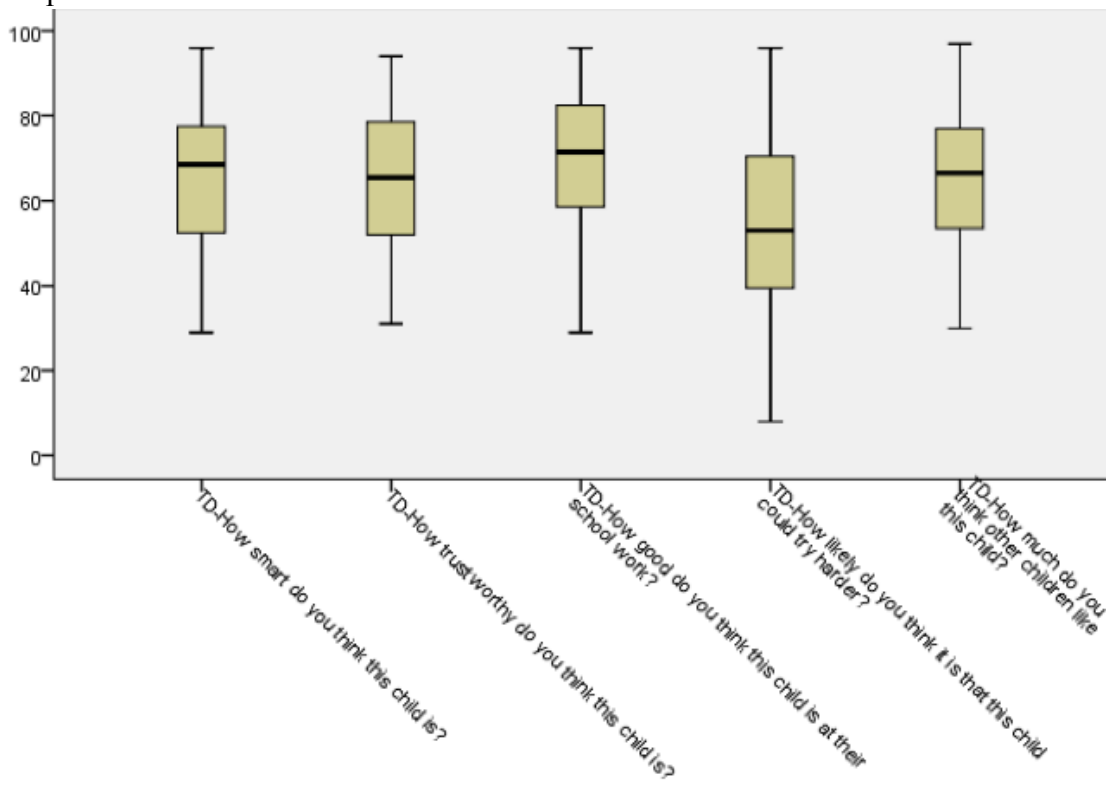
TD Narrative Questions

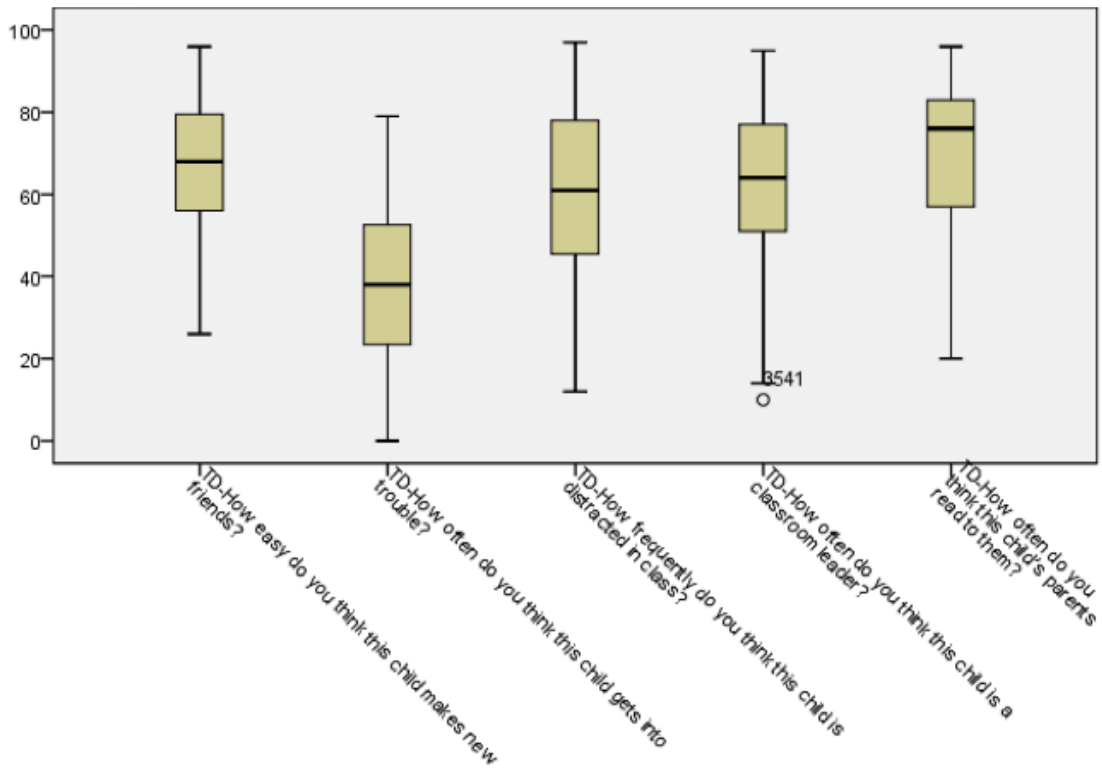


TD Parent/Family Attributes



TD Speaker Attributes





APPENDIX H

ALL LISTENERS NOMINATIONS FOR CONFIDENCE RESPONSES

Table 34: All Listeners Nominations for Confidence Responses

Question Content	**Least confident**				**Most confident**			
	SLI	ADHD	TD	**Total**	SLI	ADHD	TD	**Total**
1. Overall Story Quality	1	2	0	**3**	13	10	13	**36**
2. Quantity of Detail	1	1	0	**2**	13	8	12	**33**
3. Detail Relevancy	1	1	0	**2**	6	4	5	**15**
4. Thought Flow	1	1	0	**2**	9	8	7	**24**
5. Frequency of Fluent Speech	2	1	0	**3**	6	11	4	**21**
6. Correctness of Grammar	0	0	2	**2**	2	4	3	**9**
7. Correctness of Speech	2	0	1	**3**	6	6	2	**14**
8. Child Intelligence	4	5	2	**11**	1	1	2	**4**
9. Child Trustworthiness	7	9	14	**30**	1	0	1	**2**
10. Quality of Child Schoolwork	5	2	2	**9**	1	1	2	**4**
11. Child Work Ethic	4	5	8	**17**	1	0	1	**2**
12. Child Likability by Peers	9	10	10	**29**	0	0	1	**1**
13. Child Ease at Making Friends	8	7	7	**22**	1	1	2	**4**
14. Frequency of Getting into Trouble	5	5	4	**14**	0	0	0	**0**
15. Child Distractibility	2	0	5	**7**	1	2	1	**4**
16. Child Leadership	2	1	3	**6**	1	2	0	**3**
17. Frequency of Parent Reading	5	4	5	**14**	2	1	3	**6**
18. Parent Education	16	11	14	**41**	1	0	2	**3**
19. Family Income	13	14	16	**43**	1	2	4	**7**
Total	88	79	93	**260**	66	61	65	**192**
Total Nominations								**452**

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